


A STUDY OF THE INTERRELATIONSHIPS OF
SOME NATAL SPECIES OF SENECIO
(ASTERACEAE / COMPOSITAE)

VOLUME 2: FIGURES, PLATES, TABLES AND APPENDICES

By

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1984

... how mean a thing a mere Fact is, except as seen
in the light of some comprehensive Truth.

Coleridge, The Friend

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PLATE I I

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 - the rough relief of the exine in the colpi.
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<u>PLANT HEIGHT (MAX.)</u> (in mm)	<u>TAXA</u>
150 (1)	120
250 (2)	28,40
300 (3)	1,30,37
350 (1)	50
400 (1)	43
450 (5)	26,72,73,83,124
500 (1)	25
600 (19)	24A,27,29,31,32,34,36,41,42,46,48,55,57,86,99, 101,103,104,122
700 (7)	24B,24C,24D,35,47,81,82
750 (3)	38A,38B,65
800 (1)	118
1000 (16)	3,4,7,9,18,39,51,64,67,75,76,77,85,89,90,102
1300 (7)	33A,33B,56,63,74,97,98
1200 (1)	10
1500 (2)	20,22
1800 (3)	5,6,88
2000 (2)	23,53
Character state 0: (24)	2,117,119,201,202,203,204,210,212,213,214,215, (data not available) 216,217,219,220,223,224,225,226,227,228,229, 232
Character state 99 (NC):	15,16,17,107,108,109,110,111,116,121,200 [NC = no comparison]

FIGURE 1 .

The range in plant height (Character - PLANT HEIGHT (MAX.) (CHAR 010)), amongst all the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each recorded plant height (maximum).

<u>LEAF LENGTH (MAX.): RADICAL</u> (in mm)	<u>TAXA</u>
40 (2)	24C,73
50 (1)	30
70 (2)	37,40
100 (2)	24A,50
150 (5)	29,32,36,65,72
160 (1)	67
180 (1)	82
190 (1)	28
200 (9)	24B,24D,35,41,42,43,46,81,83
250 (1)	57
270 (1)	39
300 (8)	27,33A,33B,48,55,56,63,85
350 (2)	47,64
450 (4)	22,74,77,86
500 (1)	76
600 (2)	75,88
Character state 99 (NC): (68)	1,2,3,4,5,6,7,9,10,14,15,16,17,18,20, 23,25,26,31,34,38A,38B,51,53,89,90,97, 98,99,101,102,103,104,107,108,109,110, 111,116,117,118,119,120,121,122,124, 200,201,202,203,204,210,212,213,214, 215,216,217,219,220,223,224,225,226, 227,228,229,232
[NC = no comparison]	

FIGURE 2.

The range in the length of the radical leaves (Character - LEAF LENGTH (MAX.): RADICAL (CHAR 012)), amongst all the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each recorded radical leaf length (maximum).

<u>LEAF LENGTH (MAX.): CAULINE</u>	<u>TAXA</u>
(in mm)	
20 (1)	119
30 (3)	16,17,50
40 (3)	15,24C,40
50 (2)	24A,120
55 (1)	117
60 (5)	18,20,43,116,124
70 (7)	10,25,37,46,48,109,121
75 (1)	118
80 (2)	110,111
90 (2)	89,102
100 (8)	2,3,4,33A,33B,34,47,51
110 (2)	23,31
120 (6)	1,9,104,107,108,122
125 (1)	26
130 (1)	77
140 (3)	24B,24D,101
150 (8)	5,6,7,38A,38B,53,65,103
160 (2)	67,99
220 (1)	14
225 (2)	97,98
350 (1)	64
450 (1)	22
500 (1)	76
>999 (3)	41,42,90
Character state 0: (22) (data not available)	27,28,29,30,32,35,36,39,55,56,57,63,72, 73,74,75,81,82,83,86,88
Character state 99 (NC): (22) [NC = no comparison]	200,201,202,203,204,210,212,213,214, 215,216,217,218,219,220,223,224,225, 226,227,228,229,232

FIGURE 3.

The range in cauline leaf length (Character - LEAF LENGTH (MAX.): CAULINE (CHAR 013)), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each recorded cauline leaf length (maximum).

<u>LEAF WIDTH (MAX.): RADICAL</u>	<u>TAXA</u>
(in mm)	
10 (7)	22,24C,40,50,55,65,67
15 (2)	63,64
18 (1)	32
20 (4)	29,37,76,81
30 (3)	24A,36,73
40 (11)	30,33A,33B,35,42,43,46,56,57,77,83
45 (1)	86
50 (5)	27,28,47,48,88
60 (3)	24B,24D,72
70 (2)	39,41
80 (2)	74,75
82 (1)	82
90 (1)	85
Character state 99 (NC): (68)	1,2,3,4,5,6,7,9,10,14,15,16,17,18,20,23,
25,26,31,34,38A,38B,51,53,89,90,97,98,99,	
[NC = no comparison]	101,102,103,104,107,108,109,110,111,116,
	117,118,119,120,121,122,124,200,201,202,
	203,204,210,212,213,214,215,216,217,219,
	220,223,224,225,227,228,229,232

FIGURE 4.

The range in the width of the cauline leaves (Character - LEAF WIDTH (MAX.): RADICAL (CHAR 014)), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each recorded radical leaf width (maximum).

<u>LEAF WIDTH (MAX.): CAULINE</u>	<u>TAXA</u>
(in mm)	
3 (1)	53
5 (4)	50,64,77,117
7 (1)	40
8 (3)	15,16,17
9 (1)	120
10 (7)	3,4,22,24A,24C,65,67
13 (2)	43,48
15 (8)	25,33A,33B,46,47,103,104,124
18 (2)	97,98
20 (9)	2,24B,24D,37,51,76,99,118,119
25 (4)	1,9,10,18
30 (2)	20,31
35 (2)	34,122
40 (6)	5,6,7,42,101,102
50 (3)	23,107,108
55 (1)	26
65 (2)	38A,38B
70 (4)	41,110,116,121
80 (3)	90,109,111
90 (1)	89
110 (1)	14
Character state 0: (22) (data not available)	27,28,29,30,32,35,36,39,55,56,57,63,72, 73,74,75,81,82,83,85,86,88
Character state 99 (NC): (22) [NC = no comparison]	200,201,202,203,204,210,212,213,214,215, 216,217,219,220,223,224,225,226,227,228, 229,232

FIGURE 5.

The range in the width of the cauline leaves (Character - LEAF WIDTH (MAX.): CAULINE (CHAR 015)), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each recorded cauline leaf width (maximum).

<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (3)	10,76,77
2 (1)	67
3 (23)	2,9,22,24A,24B,24D,35,36,37,38A,38B,39,46,47,57,73, 75,97,111,116,219,220,226
4 (11)	23,28,33A,33B,43,48,63,72,83,110,212
5 (9)	1,3,64,65,74,81,82,85,88
6 (1)	41
7 (1)	30
9 (7)	24C,34,210,213,214,217,224
10 (3)	4,25,26
11 (1)	27
12 (3)	29,40,42
13 (3)	5,6,7
14 (2)	55,56
15 (2)	53,203
16 (1)	50
17 (1)	51
18 (1)	86
19 (4)	14,18,20,121
20 (1)	109
23 (1)	15
24 (1)	16
25 (1)	17
26 (4)	202,215,216,225
27 (1)	204
28 (2)	227,232
36 (1)	200
99 (NC) (22)	31,32,89,90,98,99,101,102,103,104,107,108,117,118, [NC = no comparison] 119,120,122,124,201,223,228,229

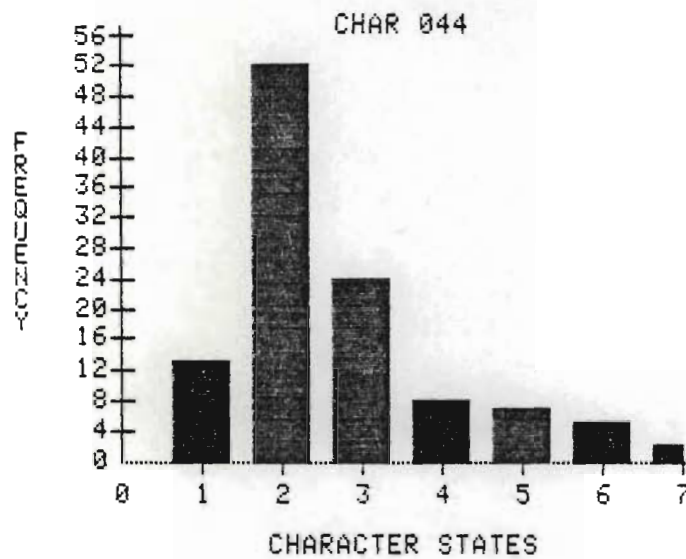
Figure 6.

The distribution of the character states of the character - LEAF TRICHOMES: BASE (CHAR 034), amongst the taxa studied (Table 1). The character state numbers are according to Appendix A. The numbers in parentheses refer to the frequency of occurrence of each character state.

<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (2)	76,77
2 (8)	3,10,67,72,73,82,85,226
3 (1)	22
4 (5)	23,27,29,40,63
5 (1)	1
6 (3)	26,39,46
7 (1)	41
8 (1)	24C
9 (1)	24B
10 (2)	30,33B
11 (2)	24A,28
12 (1)	33A
13 (1)	34
14 (1)	4
15 (3)	5,6,7
17 (2)	53,227
18 (1)	24D
19 (4)	25,35,36,37
20 (3)	2,38A,38B,42
21 (5)	81,83,200,219,220
22 (11)	9,57,75,86,88,110,203,215,216,217,225
23 (1)	55
24 (1)	43
25 (1)	47
26 (1)	48
27 (1)	50
28 (2)	51,64
29 (1)	56
30 (2)	65,74
31 (4)	97,111,116,232
32 (4)	14,18,20,121
33 (1)	109
34 (2)	15,17
35 (1)	16
37 (1)	202
38 (1)	204
39 (1)	212
40 (3)	210,213,224
41 (1)	214
99 (NC) (22)	31,32,89,90,98,99,101,102,103,104,107,108,117, [NC = no comparison] 118,119,120,122,124,201,223,228,229

FIGURE 7.

The distribution of the character states of the character - LEAF TRICHOMES: APEX (CHAR 035), amongst the taxa studied (Table 1). The character state numbers are according to Appendix A. The numbers in parentheses refer to the frequency of occurrence of each character state.

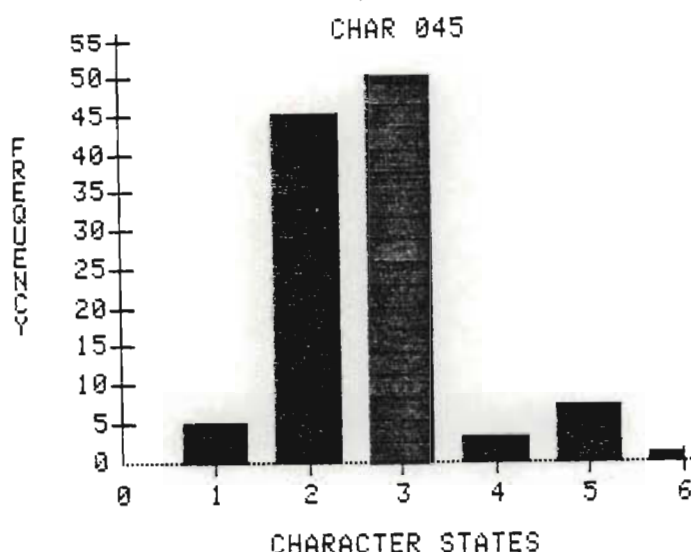


<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (13)	1,3,5,6,7,9,10,32,97,108,109,110,219
2 (52)	2,4,14,15,16,17,18,22,23,24A,24C,24D,29,30,31,33A,33B,34,38A,38B,39,40,41,42,50,51,53,65,67,72,73,82,86,88,89,99,101,102,103,107,121,124,200,201,210,213,214,215,216,217,220,232
3 (24)	24B,27,28,36,37,43,46,47,48,63,64,74,77,83,90,98,104,118,202,203,212,223,226,227
4 (8)	35,55,56,57,76,204,224,225
5 (7)	26,75,85,111,116,117,120
6 (5)	20,81,119,122,229
7 (2)	25,228

Character state 1 - 5-7 mm
 Character state 2 - 8-10 mm
 Character state 3 - 11-13 mm
 Character state 4 - 14-15 mm
 Character state 5 - 16-18 mm
 Character state 6 - 19-22 mm
 Character state 7 - > 23 mm

FIGURE 8.

The distribution of the character states of the character - CAPITULA: LENGTH (CHAR 044), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.

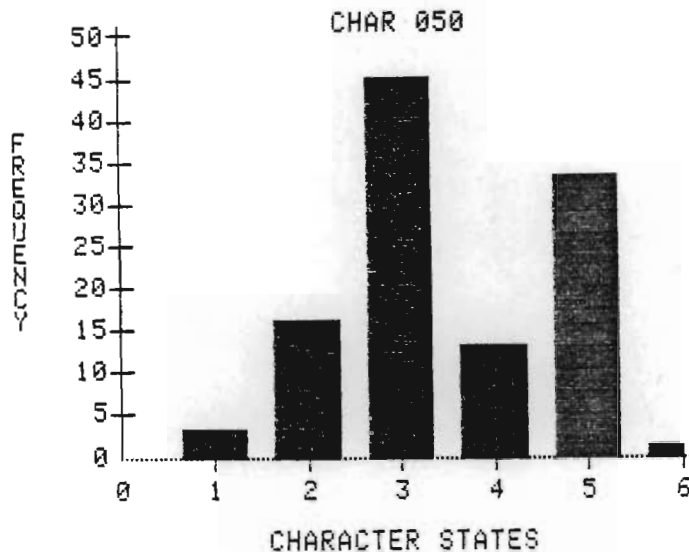


<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (5)	10,107,108,109,110
2 (45)	1,3,4,5,6,7,9,14,18,23,32,38A,38B,39,40,41,42,50,51,73,88,89,97,98,101,102,103,111,117,119,121,201,210,213,214,215,216,217,219,220,223,226,227,229,232
3 (50)	2,15,16,17,22,24A,24B,24C,24D,26,27,28,29,30,31,33A,33B,34,35,36,37,43,46,47,48,53,55,56,63,64,65,76,72,82,86,90,99,104,116,118,120,124,200,202,203,204,212,224,225,228
4 (3)	57,74,83
5 (7)	20,25,76,77,81,85,122
6 (1)	75

Character state 1 - < 3 mm
 Character state 2 - 4-7 mm
 Character state 3 - 8-10 mm
 Character state 4 - 11-12 mm
 Character state 5 - 13-18 mm
 Character state 6 - 20-25 mm

FIGURE 9.

The distribution of the character states of the character - **CAPITULA: DIAMETER** (CHAR 045), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.

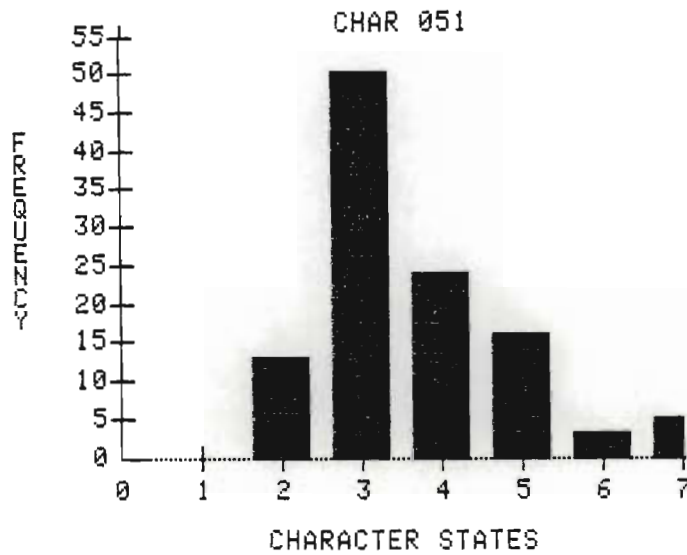


<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (3)	108,110,119
2 (16)	10,14,97,98,101,102,103,107,109,111,117,121,122,124,228,229
3 (45)	5,9,15,16,17,18,20,22,23,24A,27,28,29,32,34,38,A,38B,39,40,41,42,46,47,64,65,67,88,89,90,99,104,116,118,120,201,202,204,216,219,220,223,224,226,227,232
4 (13)	24C,30,31,43,50,51,200,210,212,214,215,217,225
5 (33)	1,2,3,4,6,7,24B,24D,25,26,33A,33B,35,36,37,48,53,55,56,57,63,72,73,74,75,76,77,82,83,85,86,203,213
6 (1)	81

Character state 1 - 5-6 Involucral bracts
 Character state 2 - 7-8 Involucral bracts
 Character state 3 - 10-14 Involucral bracts
 Character state 4 - 16-18 Involucral bracts
 Character state 5 - 20-22 Involucral bracts
 Character state 6 - 26-32 Involucral bracts

FIGURE 10.

The distribution of the character states of the character - INVOLUCRAL BRACTS: NUMBER (CHAR 050), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.

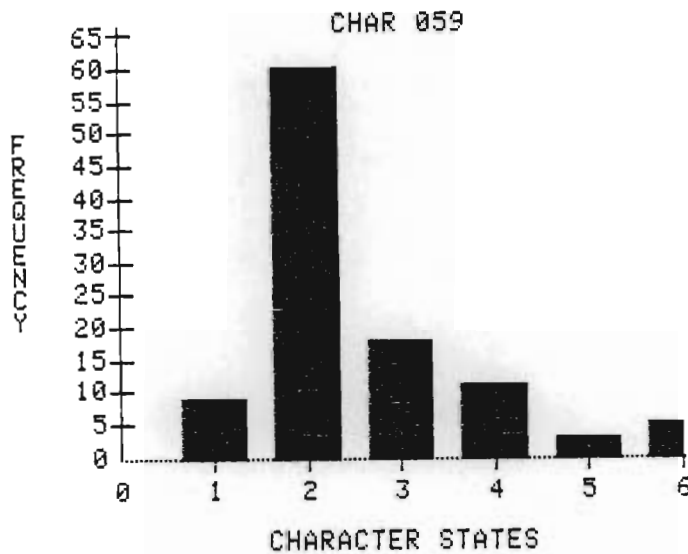


<u>CHARACTER STATE</u>	<u>TAXA</u>
2 (13)	6,7,9,10,18,32,101,102,107,108,109,110,220
3 (50)	1,2,3,4,14,15,16,17,22,23,24C,29,30,31,33A,33B,34,38A,38B,39,40,41,42,50,53,64,65,67,73,74,88,89,97,98,99,103,121,124,200,210,212,213,214,215,216,217,219,223,226,232
4 (24)	24A,24B,24D,27,28,35,37,51,57,63,72,77,82,83,90,104,111,116,118,201,203,204,225,227
5 (16)	26,36,43,47,48,55,56,76,81,85,86,117,119,120,202,224
6 (3)	20,46,229
7 (5)	5,25,75,122,228

Character state 2 - 4-5 mm
 Character state 3 - 6-8 mm
 Character state 4 - 9-10 mm
 Character state 5 - 11-13 mm
 Character state 6 - 14-15 mm
 Character state 7 - > 16 mm

FIGURE 11 .

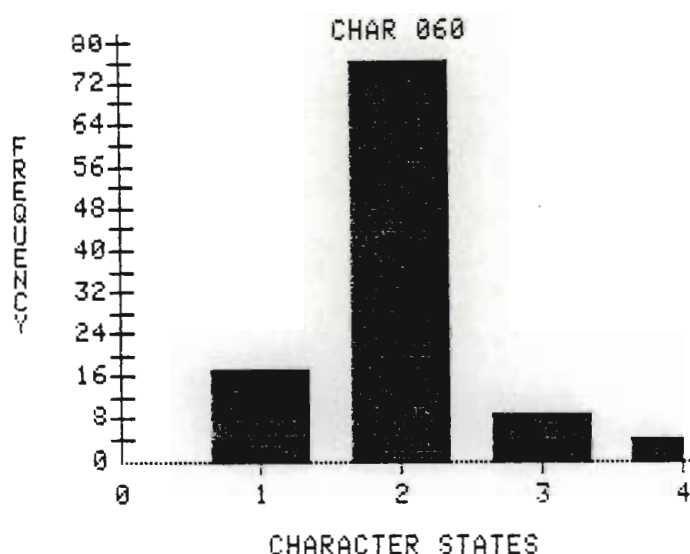
The distribution of the character states of the character- INVOLUCRAL BRACTS: LENGTH (CHAR 051), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.



<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (9)	89, 90, 97, 98, 99, 101, 102, 103, 228
2 (60)	10, 15, 16, 17, 18, 20, 22, 23, 24A, 24B, 24C, 24D, 26, 27, 28, 29, 30, 31, 32, 33A, 33B, 34, 36, 37, 38A, 38B, 39, 40, 41, 42, 43, 46, 47, 48, 50, 51, 55, 56, 57, 83, 88, 104, 107, 108, 109, 110, 111, 116, 117, 119, 120, 121, 201, 202, 216, 217, 219, 223, 229, 232
3 (18)	1, 2, 9, 14, 25, 35, 65, 67, 72, 73, 74, 77, 82, 85, 118, 212, 214, 220
4 (11)	5, 6, 63, 64, 75, 81, 86, 204, 210, 215, 227
5 (3)	3, 7, 225
6 (5)	4, 53, 76, 200, 203
99 (NC) (5)	122, 124, 213, 224, 226
[NC = no comparison]	
Character state 1 - 1-2 Calyculus bracts	
Character state 2 - 3-5 Calyculus bracts	
Character state 3 - 6-9 Calyculus bracts	
Character state 4 - 10-12 Calyculus bracts	
Character state 5 - 14-18 Calyculus bracts	
Character state 6 - 20-30 Calyculus bracts	
Character state 99 - Calyculus bracts absent	

FIGURE 12.

The distribution of the character states of the character - CALYCLUS BRACTS: NUMBER (CHAR 059), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.



<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (17)	1, 5, 9, 10, 40, 41, 50, 98, 102, 103, 110, 111, 117, 119, 216, 220, 232
2 (76)	2, 3, 4, 6, 7, 14, 15, 16, 17, 18, 22, 23, 24A, 24B, 24C, 24D, 26, 27, 28, 29, 30, 31, 32, 33A, 33B, 34, 35, 36, 37, 38A, 38B, 39, 42, 43, 47, 51, 53, 55, 56, 57, 63, 64, 65, 67, 72, 73, 82, 86, 88, 89, 90, 97, 99, 101, 104, 107, 108, 109, 118, 120, 121, 200, 201, 202, 204, 210, 212, 214, 215, 217, 219, 223, 225, 227, 228, 229
3 (9)	20, 25, 46, 48, 74, 77, 83, 85, 203
4 (4)	75, 76, 81, 116
99 (NC) (5)	122, 124, 213, 224, 226

[NC = no comparison]

Character state 1 - 1-2 mm

Character state 2 - 3-6 mm

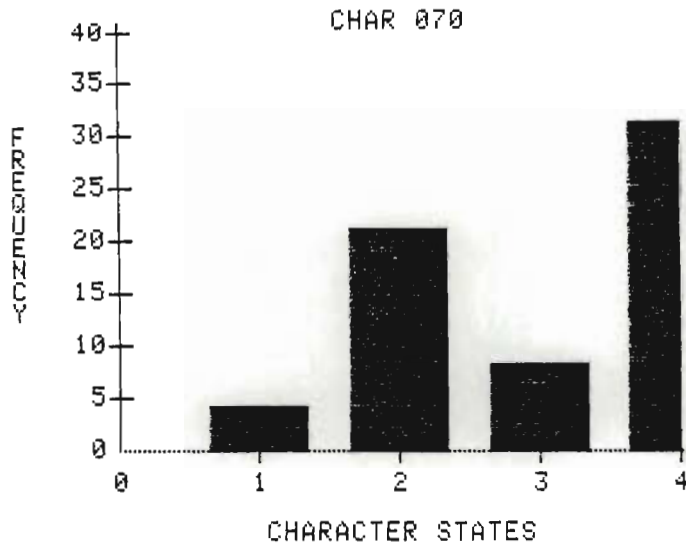
Character state 3 - 7-9 mm

Character state 4 - 10-17 mm

Character state 99 - Calyculus bracts absent

FIGURE 13.

The distribution of the character states of the character - CALYCLUS BRACTS: LENGTH (CHAR 060), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.

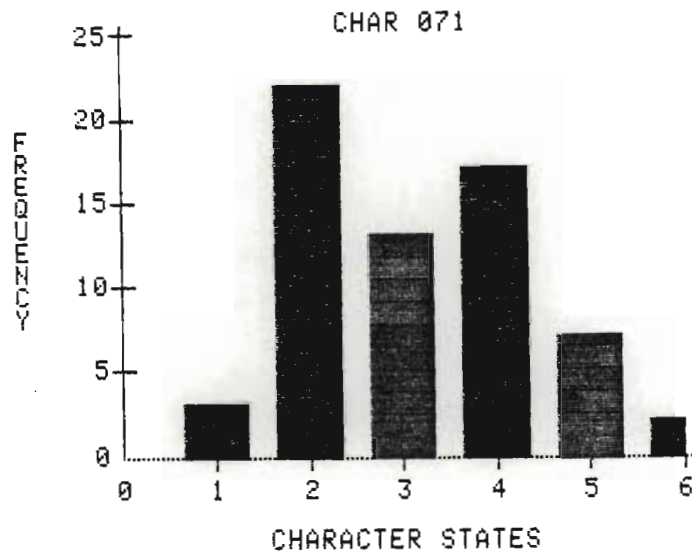


<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (4)	101,103,107,110
2 (21)	5,10,18,34,38A,46,50,51,63,64,65,72,88,97,98,99,102, 111,201,202,232
3 (8)	47,56,73,74,83,200,219,220
4 (31)	1,2,3,4,6,7,9,15,16,17,20,33B,35,36,43,48,75,76,81, 82,85,86,118,203,204,212,213,214,215,216,217
99 (NC) (47)	22,23,24A,24B,24C,24D,25,26,27,28,29,30,31,32, [NC = no comparison] 33A,37,38B,39,40,41,42,53,55,57,67,77,89,90,104, 108,109,116,117,119,120,121,122,124,210,223,224, 225,226,227,228,229

Character state 1 - 2-4 Ray florets
 Character state 2 - 5-8 Ray florets
 Character state 3 - 9-11 Ray florets
 Character state 4 - 12-14 Ray florets
 Character state 99 - Ray florets absent

FIGURE 14.

The distribution of the character states of the character - RAY COROLLA: FLORET NUMBER (CHAR 070), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.



<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (3)	10, 216, 219
2 (22)	1, 2, 3, 5, 6, 7, 9, 18, 38A, 50, 51, 101, 102, 103, 107, 110, 118, 212, 213, 215, 217, 220
3 (13)	15, 16, 17, 33B, 65, 74, 82, 88, 97, 98, 99, 214, 232
4 (17)	4, 34, 35, 36, 43, 64, 72, 73, 81, 83, 86, 111, 200, 201, 202, 203, 204
5 (7)	20, 46, 47, 48, 56, 63, 76
6 (2)	75, 85
99 (NC) (47)	22, 23, 24A, 24B, 24C, 24D, 25, 26, 27, 28, 29, 30, 31, 32, 33A, 37, 38B, 39, 40, 41, 42, 53, 55, 57, 67, 77, 89, 90, 104, 108, 109, 116, 117, 119, 120, 121, 122, 124, 210, 223, 224, 225, 226, 227, 228, 229

Character state 1 - 5-7 mm

Character state 2 - 8-11 mm

Character state 3 - 12-15 mm

Character state 4 - 16-20 mm

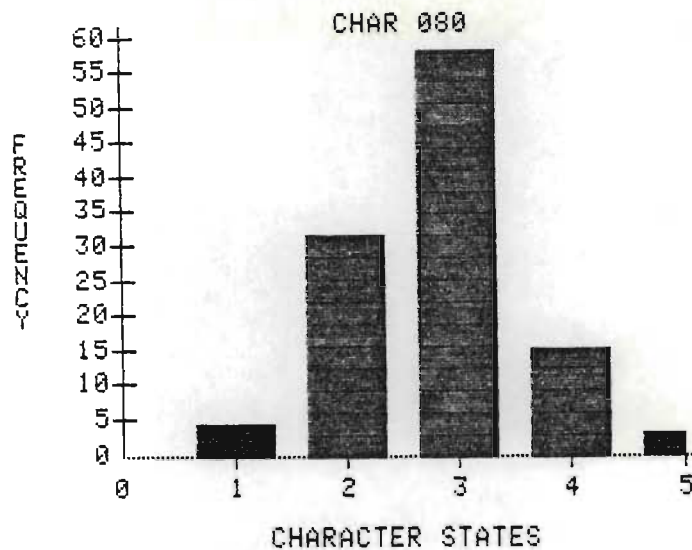
Character state 5 - 21-25 mm

Character state 6 - 26-40 mm

Character state 99 - Ray florets absent

FIGURE 15.

The distribution of the character states of the character - RAY COROLLA LENGTH (CHAR 071), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.

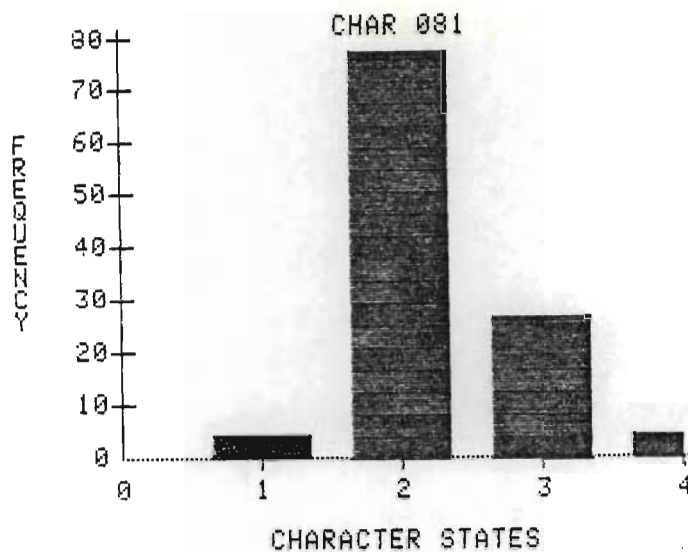


<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (4)	108,117,119,229
2 (31)	9,10,14,15,18,23,27,32,38A,39,40,41,67,88,89,97,98, 101,102,103,107,109,110,111,120,121,124,210, 216,219,223
3 (58)	5,6,7,16,17,20,22,24A,24B,24C,24D,25,26,28,29,30,31, 33A,34,37,38B,42,43,46,47,48,50,51,63,64,65,72,73, 74,76,77,82,86,90,99,104,116,118,122,200,201,202, 212,214,215,217,220,224,226,227,228,232
4 (15)	1,2,3,4,33B,35,36,53,55,56,85,203,204,213,225
5 (3)	57,75,81

Character state 1 - 5-8 Disc florets
 Character state 2 - 10-30 Disc florets
 Character state 3 - 40-60 Disc florets
 Character state 4 - 70- 90 Disc florets
 Character state 5 - > 100 Disc florets

FIGURE 16.

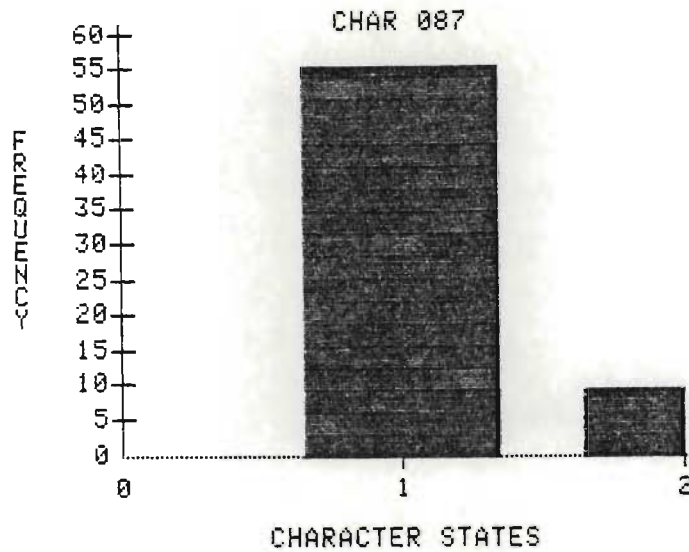
The distribution of the character states of the character - DISC FLORET NUMBER (CHAR 080), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.



<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (4)	3,40,110,220
2 (77)	1,2,4,5,6,7,9,10,14,15,16,17,18,22,23,24A,24B,24C,24D,27,28,29,30,31,32,33A,33B,34,35,36,38A,38B,39,41,42,50,51,53,65,67,72,73,74,77,82,86,88,89,90,97,98,99,101,102,103,104,107,108,109,118,121,124,200,201,202,203,204,210,212,213,214,215,216,217,219,226,232
3 (26)	20,25,26,37,43,46,47,48,55,56,57,63,64,75,76,81,83,85,111,116,117,120,223,224,225,227
4 (4)	119,122,228,229
Character state 1 - 4,0-4,7 mm	
Character state 2 - 5,0-8,8 mm	
Character state 3 - 9,0-15,0 mm	
Character state 4 - > 17,0 mm	

FIGURE 17.

The distribution of the character states of the character - DISC COROLLA: COROLLA LENGTH (CHAR 081), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.



<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (55)	1, 2, 3, 4, 5, 6, 7, 9, 10, 15, 16, 17, 18, 33B, 34, 36, 38A, 46, 47, 48, 50, 51, 63, 64, 65, 72, 73, 74, 81, 82, 85, 88, 97, 98, 99, 101, 102, 103, 107, 110, 118, 200, 201, 202, 203, 204, 212, 213, 214, 215, 216, 217, 219, 220, 232
2 (9)	20, 35, 43, 56, 75, 76, 83, 86, 111
99 (NC) (47) [NC = no comparison]	14, 22, 23, 24A, 24B, 24C, 24D, 25, 26, 27, 28, 29, 30, 31, 32, 33A, 37, 38B, 39, 40, 41, 42, 53, 55, 57, 67, 77, 89, 90, 104, 108, 109, 116, 117, 119, 120, 121, 122, 124, 210, 223, 224, 225, 226, 227, 228, 229

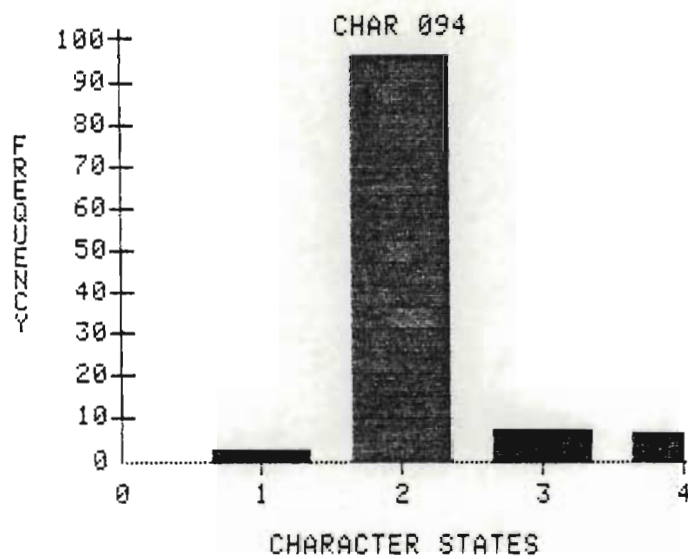
Character state 1 - 0,4-1,4 mm

Character state 2 - > 1,5 mm

Character state 99 - Ray florets absent

FIGURE 18.

The distribution of the character states of the character - GYNODECIUM (RAY): STYLE-ARM LENGTH (CHAR 087), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.



<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (2)	216, 219
2 (96)	1, 2, 3, 4, 5, 6, 7, 9, 10, 14, 15, 16, 17, 18, 22, 23, 24A, 24B, 24C, 24D, 25, 26, 27, 28, 29, 30, 31, 32, 33A, 33B, 34, 35, 36, 37, 38A, 39, 40, 41, 42, 43, 46, 47, 48, 50, 51, 53, 57, 63, 64, 65, 67, 72, 73, 74, 75, 76, 77, 81, 82, 83, 85, 86, 88, 89, 90, 97, 98, 99, 101, 102, 103, 104, 107, 108, 109, 110, 121, 124, 200, 201, 202, 203, 204, 210, 212, 213, 214, 215, 217, 220, 224, 225, 226, 232
3 (7)	20, 55, 56, 111, 116, 117, 120
4 (6)	119, 122, 223, 227, 228, 229
Character state 1 - < 0,5 mm	
Character state 2 - 0,6-1,5 mm	
Character state 3 - 1,6-2,5 mm	
Character state 4 - 3,0-3,5 mm	

FIGURE 19.

The distribution of the character states of the character - GYNOECIUM (DISC): STYLE-ARM LENGTH (CHAR 094), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.

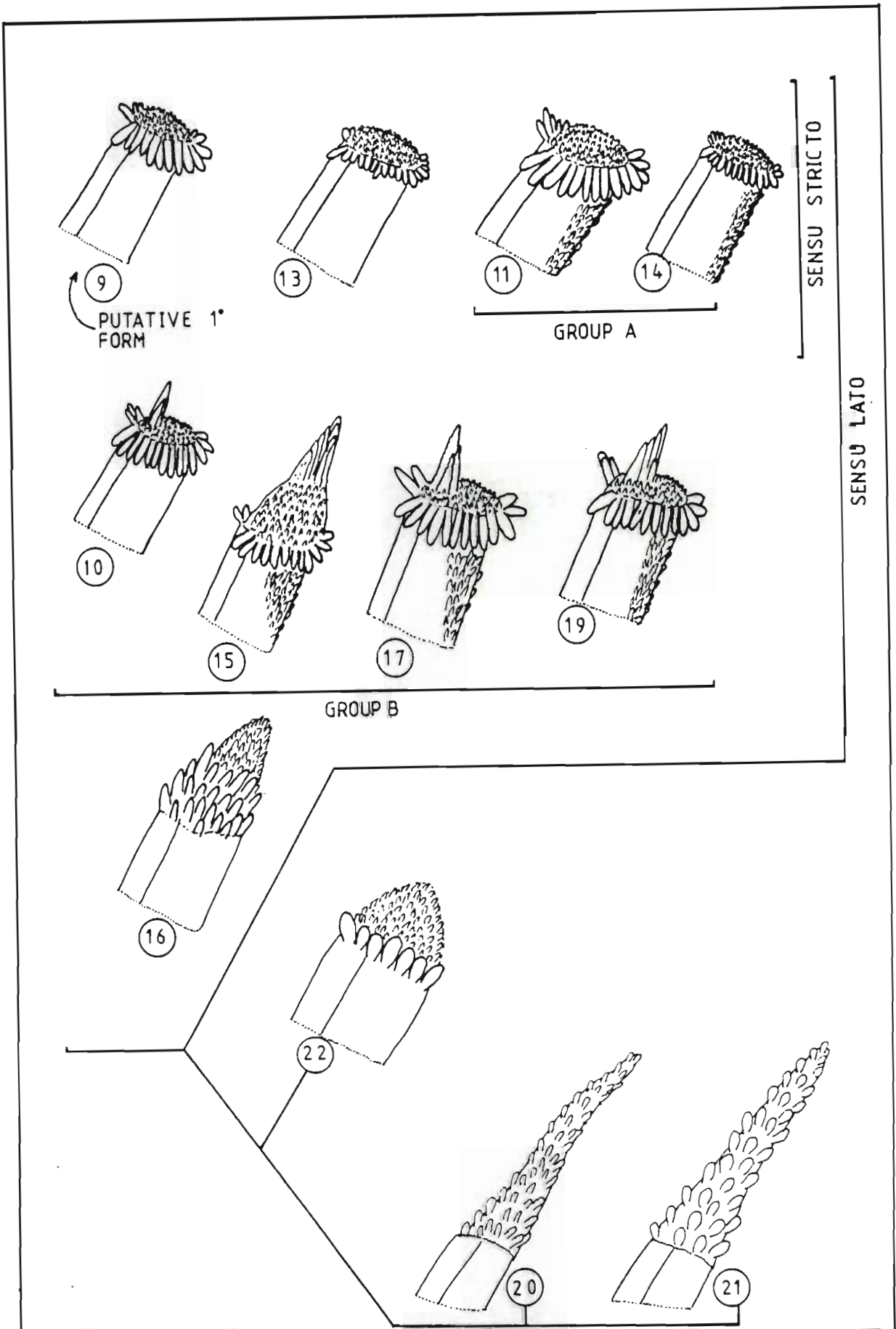
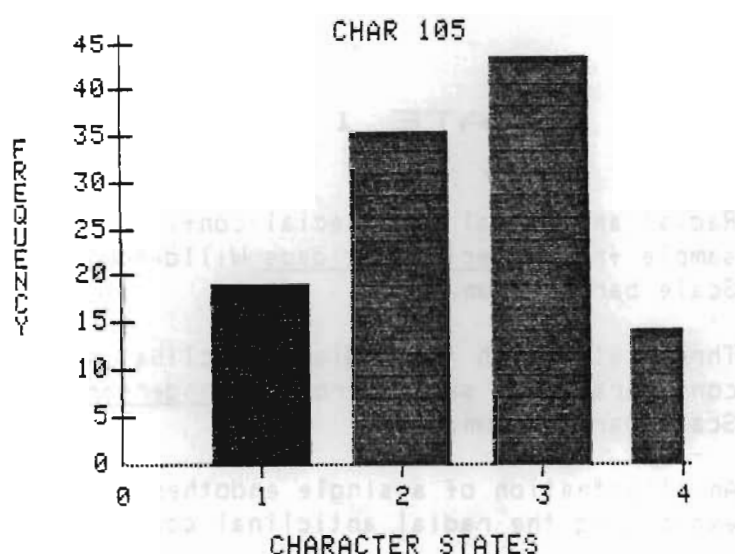


FIGURE 20. A proposed scheme of the possible affinities of the twelve forms of style-arm apex amongst the taxa studied (Table 1). Form (character state) 9 is the putative primary form with form 13 being closely related. Forms 11 and 14 (group A) and 10, 15, 17 and 19 (group B) are more distantly related to the primary form, while forms 16, 22, 20 and 21 are increasingly distantly related to the primary form. An indication of which forms are considered to be characteristic of *Cassia*



<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (19)	1, 2, 3, 5, 6, 23, 38B, 39, 119, 204, 210, 212, 213, 215, 216, 219, 220, 225, 226
2 (35)	4, 7, 9, 10, 17, 18, 22, 24B, 24C, 24D, 27, 29, 30, 31, 32, 33A, 33B, 34, 37, 38A, 41, 50, 53, 73, 97, 99, 101, 107, 109, 200, 203, 214, 217, 227, 232
3 (43)	14, 15, 16, 24A, 25, 26, 28, 35, 36, 40, 42, 43, 46, 47, 48, 51, 57, 63, 65, 67, 72, 74, 77, 81, 82, 83, 86, 88, 89, 90, 98, 102, 103, 104, 108, 111, 118, 121, 124, 201, 202, 223, 224
4 (14)	20, 55, 56, 64, 75, 76, 85, 116, 117, 119, 120, 122, 228, 229
Character state 1	- < 1,7 mm
Character state 2	- 1,8-2,2 mm
Character state 3	- 2,3-2,9 mm
Character state 4	- 3,0-4,0 mm

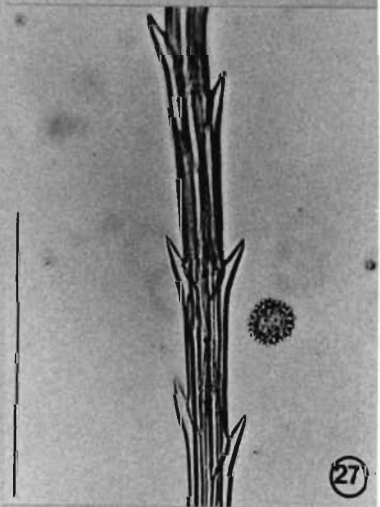
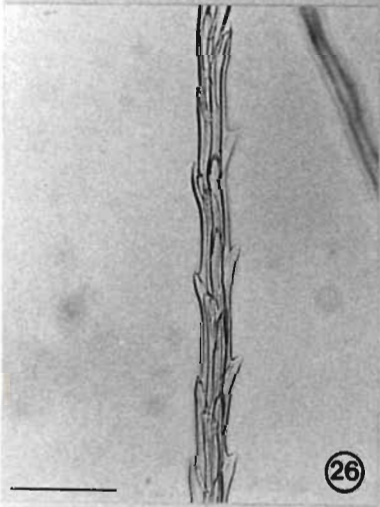
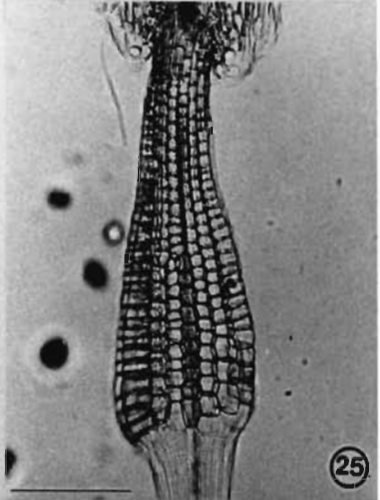
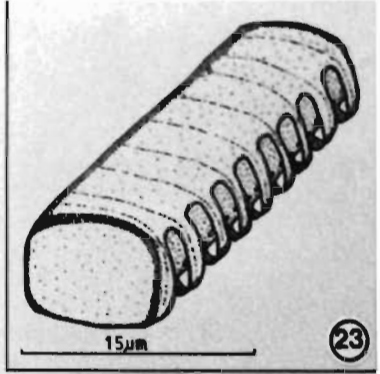
FIGURE 21 .

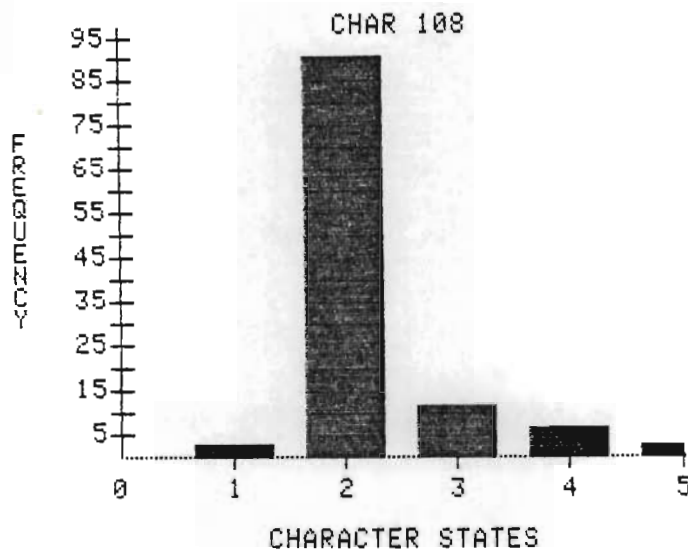
The distribution of the character states of the character - ANDROECIUM (DISC): ANTHR LENGTH (CHAR 105), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.

PLATE I

- Fig. 22a Radial anticlinal endothelial configuration - sample from Senecio speciosus Willdenow. Scale bar \equiv 10 μ m.
- Fig. 22b Three cells with the radial anticlinal endothelial configuration - sample from S. sandersonii Harvey. Scale bar \equiv 10 μ m.
- Fig. 23 An illustration of a single endothelial cell exhibiting the radial anticlinal configuration.
- Fig. 24 A "cacalioid" ("cylindrical") filament collar from S. medley-woodii Hutchinson. Scale bar \equiv 10 μ m.
- Fig. 25 A "balusterform" ("senecioid") filament collar from S. speciosus. Scale bar \equiv 10 μ m.
- Fig. 26 Pappus seta - not noticeably barbellate; from S. serratuloides DC. Scale bar \equiv 100 μ m.
- Fig. 27 Pappus seta - noticeably barbellate; from S. glaberrimus DC. Scale bar \equiv 100 μ m.
- Fig. 28 Dimorphic pappus setae; narrow seta noticeably barbellate; broad seta noticeably barbellate; from S. panduriformis. Scale bar \equiv 100 μ m.
- Fig. 29 Pappus setae with deltoid barbellation; from S. sandersonii. Scale bar \equiv 100 μ m.

Handwritten text in a cursive script, likely a botanical description or list of specimens, located to the left of the first row of images.



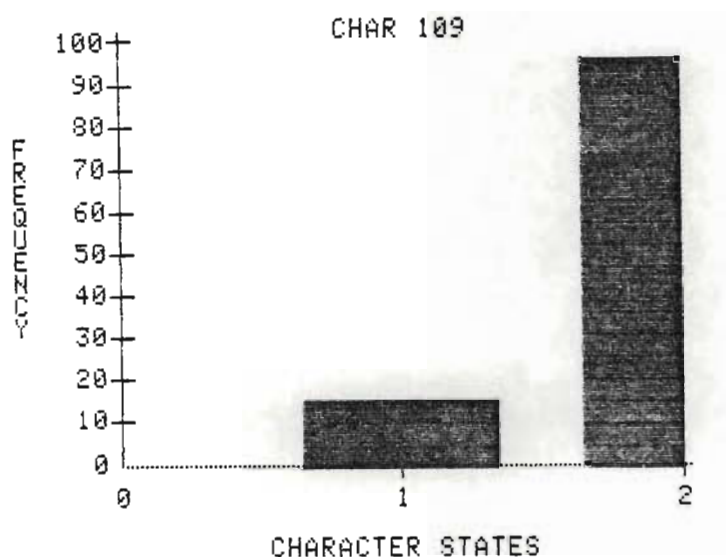


<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (2)	5,6
2 (90)	1,2,3,4,7,9,10,14,15,16,17,18,22,23,24A,24B,24C,24D, 25,27,28,29,30,31,32,33A,33B,34,35,36,37,38A,38B,39, 40,41,42,43,46,48,50,51,53,56,57,63,64,65,67,73,74, 76,77,81,82,85,88,89,90,97,98,99,101,102,103,104,107, 108,109,110,121,124,200,201,202,203,204,210,212,213, 214,215,216,217,219,220,224,226,227,232
3 (11)	20,26,47,55,72,75,85,86,118,223,225
4 (6)	116,119,120,122,228,229
5 (2)	111,117

Character state 1 - < 0,2 mm
 Character state 2 - 0,3-0,6 mm
 Character state 3 - 0,7-0,9 mm
 Character state 4 - 1,0-1,4 mm
 Character state 5 - 1,6-2,3 mm

FIGURE 30.

The distribution of the characters states of the character - FILAMENT COLLARS: LENGTH (CHAR 108), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.

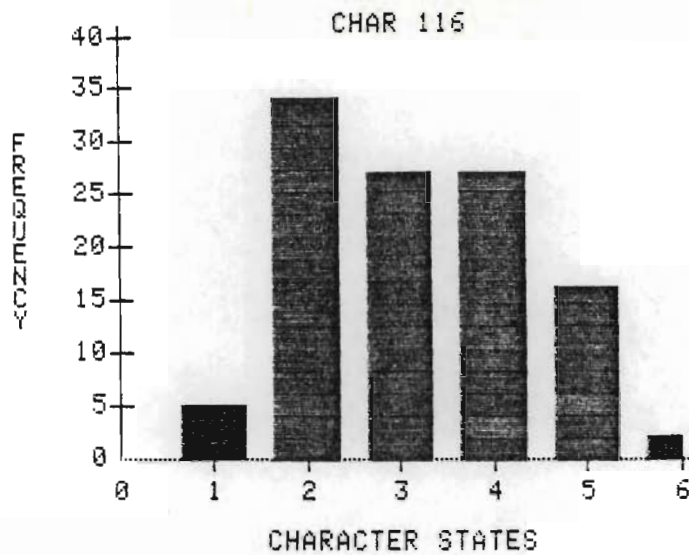


<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (15)	3, 9, 33A, 33B, 38B, 39, 110, 210, 212, 213, 216, 217, 219, 225, 227
2 (96)	1, 2, 4, 5, 6, 7, 10, 14, 15, 16, 17, 18, 20, 22, 23, 24A, 24B, 24C, 24D, 25, 26, 27, 28, 29, 30, 31, 32, 34, 35, 36, 37, 38A, 40, 41, 42, 43, 46, 47, 48, 50, 51, 53, 55, 56, 57, 63, 64, 65, 67, 72, 73, 74, 75, 76, 77, 81, 82, 83, 85, 86, 88, 89, 90, 97, 98, 99, 101, 102, 103, 104, 107, 108, 109, 111, 116, 117, 118, 119, 120, 121, 122, 124, 200, 201, 202, 203, 204, 214, 215, 220, 223, 224, 226, 228, 229, 232

Character state 1 - $\leq 0,1$ mm
 Character state 2 - 0,2-0,4 mm

FIGURE 31.

The distribution of the character states of the character - FILAMENT COLLARS: BASAL WIDTH (CHAR 109), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.

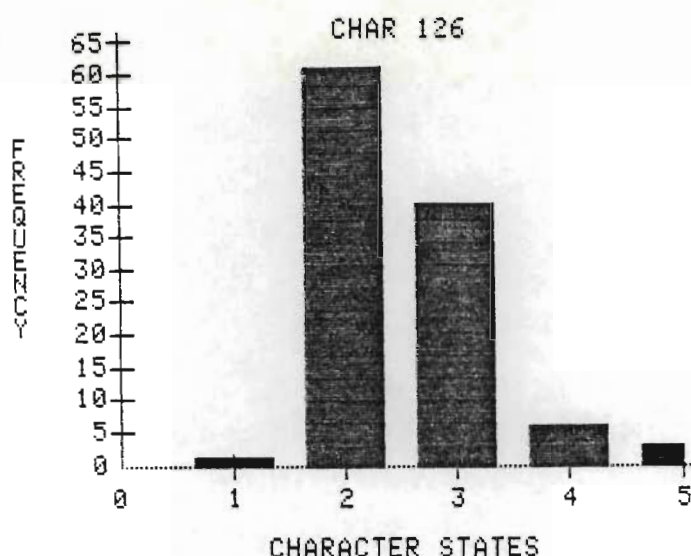


CHARACTER STATE	TAXA
1 (5)	1,3,5,6,7
2 (34)	2,4,9,10,16,24B,24C,24D,26,31,32,33A,33B,36,38B, 40,42,53,67,72,73,76,85,86,109,110,200,203,210, 215,217,225,226,227
3 (27)	15,17,18,23,27,30,34,35,37,38A,41,48,50,65,103, 107,108,201,202,212,213,214,216,219,220,223,232
4 (27)	14,22,24A,29,39,51,55,56,57,64,74,82,88,89,97,98, 99,101,111,117,118,120,121,124,204,228
5 (16)	20,28,43,46,47,63,77,83,90,102,104,116,119, 122,224,229
6 (2)	75,81

Character state 1 - 1,0-1,7 mm
 Character state 2 - 1,8-2,7 mm
 Character state 3 - 2,8-3,2 mm
 Character state 4 - 3,5-4,3 mm
 Character state 5 - 4,5-7,0 mm
 Character state 6 - 8,0-10,0 mm

FIGURE 32.

The distribution of the character states of the character - CYPSELA (DISC): LENGTH (CHAR 116), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.



<u>CHARACTER STATE</u>	<u>TAXA</u>
1 (1)	110
2 (61)	1, 2, 3, 4, 5, 6, 7, 9, 10, 15, 16, 17, 18, 22, 23, 24C, 31, 32, 33A, 33B, 34, 38A, 38B, 39, 40, 41, 42, 65, 67, 72, 73, 82, 88, 89, 90, 97, 98, 99, 101, 102, 103, 104, 107, 108, 109, 111, 121, 124, 200, 202, 210, 212, 213, 214, 215, 216, 217, 219, 220, 226, 232
3 (40)	14, 20, 24A, 24B, 24D, 27, 28, 29, 30, 35, 36, 37, 43, 46, 47, 48, 50, 51, 53, 56, 57, 63, 64, 74, 75, 76, 77, 81, 83, 85, 86, 116, 118, 201, 203, 204, 223, 224, 225, 227
4 (6)	26, 55, 117, 120, 122, 228
5 (3)	25, 119, 229

Character state 1 - 3,0-3,6 mm
 Character state 2 - 4,0-6,5 mm
 Character state 3 - 6,7-9,5 mm
 Character state 4 - 10,0-14,0 mm
 Character state 5 - 16,0-18,0 mm

FIGURE 33.

The distribution of the character states of the character - PAPPUS SETAE (DISC): LENGTH (CHAR 126), amongst the taxa studied (Table 1). The numbers in parentheses refer to the frequency of occurrence of each character state.

SYNGENESIA POLYGAMIA SUPERFLUA. 373.

857. SENECIO.* *Tournef.* 260. *Dill. elth.* 258.*Vaill. A. G.* 1719. *Jacobææ species Tournef.*CAL. *Communis* conicus, truncatus: *squamis* subulatis, plurimis, in cylindrum superne contractum parallelis, contiguis, æqualibus, paucioribus basin imbricate tegentibus, apicibus emortuis.COR. *Composita* calyce altior: *corollis hermaphroditæ* tubulosæ, numerosæ, in disco. *Femininæ* ligulatæ, in radio, si quæ adsit.*Propria Hermaphroditæ* infundibuliformis: limbo reflexo, quinquefido.*Feminis* (si quæ) oblonga, obsolete tridentata.STAM. Hermaphroditis *Filamenta* quinque, capillaria, minima. *Anthera* cylindræa, tubulosa.PIST. utrisque *Germen* ovatum, pappo coronatum sub corollula. *Stylus* filiformis, longitudine staminum. *Stigmata* duo, oblonga, revoluta.PER. nullum. *Calyx* conico-connivens.SEM. *utrisque* solitaria, ovata, *Pappo* crinito, longo, coronata.

REC. nudum, planum.

OBS. Senecio *T. caret Radio communi corollæ.**Jacobææ T. instruitur Radio communi corollæ.*FIGURE 34. The generic description of Senecio L. (Linnaeus, 1754).

SYNGENESIA: POLYGAM. SUPERFLUA. 867

Caulis erectus, angulatus, angustus, sesquipedem altus, Folia alterna, remota, lanceolata, petiolata, serratodentata, tomentoso-scabra. Ramorum tantum rudimenta ex alis foliorum. Ex supremis alis foliorum aliquot ramuli cum floribus, basi admodum divaricati. Flores terminales, aliquot, pedunculati, magnitudine præcedentis, Calycibus basi squamis aliquot laxis subulatis adpersis.

3. SENECIO corollis nudis, scapo subnudo longissimo. *PseudoChina* Roy. *lugdb.* 164.

Senecio maderaspatanus, rari folio, floribus maximis, cujus radix a nonnullis China dicitur. *Dill. eiz.* 345. t. 258. f. 335.

Habitat in India. ✕

4. SENECIO corollis nudis, foliis pinnato-sinuatis amplexicaulibus, floribus spartis. *Roy. lugdb.* 165. *Hall. helv.* 733. *Fl. succ.* 690. *Dalib. paris.* 257.

Senecio foliis pinnatifidis denticulatis: laciniis æqualibus patentissimis: rachi lineari. *Hort. cliff.* 406.

Senecio minor vulgaris. *Bauh. pin.* 131. *Fl. lapp.* 296. *Erigerum minus.* *Dod. pempt.* 641.

Habitat in Europæ cultis, ruderatis, succulentis. ☉

* *Floribus radiatis: radio revoluto.*

5. SENECIO corollis revolutis, foliis festilibus sinuatis, trifloris, calycibus conicis: squamis minimis intactis. *Hort. upf.* 261.

Senecio foliis pinnatifidis: laciniis inæqualibus erectis. *Hort. cliff.* 406.

Senecio foliis sinuatis petiolatis, pedunculis folio longioribus, florum radiis disco brevibus. *Roy. lugdb.* 165.

Jacobæa ægyptica, senecionis folio, semitofsculis vix conspicuis. *Vaill. act.* 1720. p. 298.

Habitat in Ægypto. ☉

6. SENECIO corollis revolutis, foliis amplexicaulibus ægyptiis, sinuatis, squamis calycinis brevioribus integris spha-celatis. *Hort. upf.* 261. *

Jacobæa ægyptica, senecionis folio, flore minore. *Vaill. act.* 1720. p. 298.

Habitat in Ægypto. ☉

7. SENECIO corollis revolutis, foliis amplexicaulibus lividus, lanceolatis dentatis, squamis calycinis brevissimis intactis. *Hort. upf.* 261. *

l i i a

Sen-

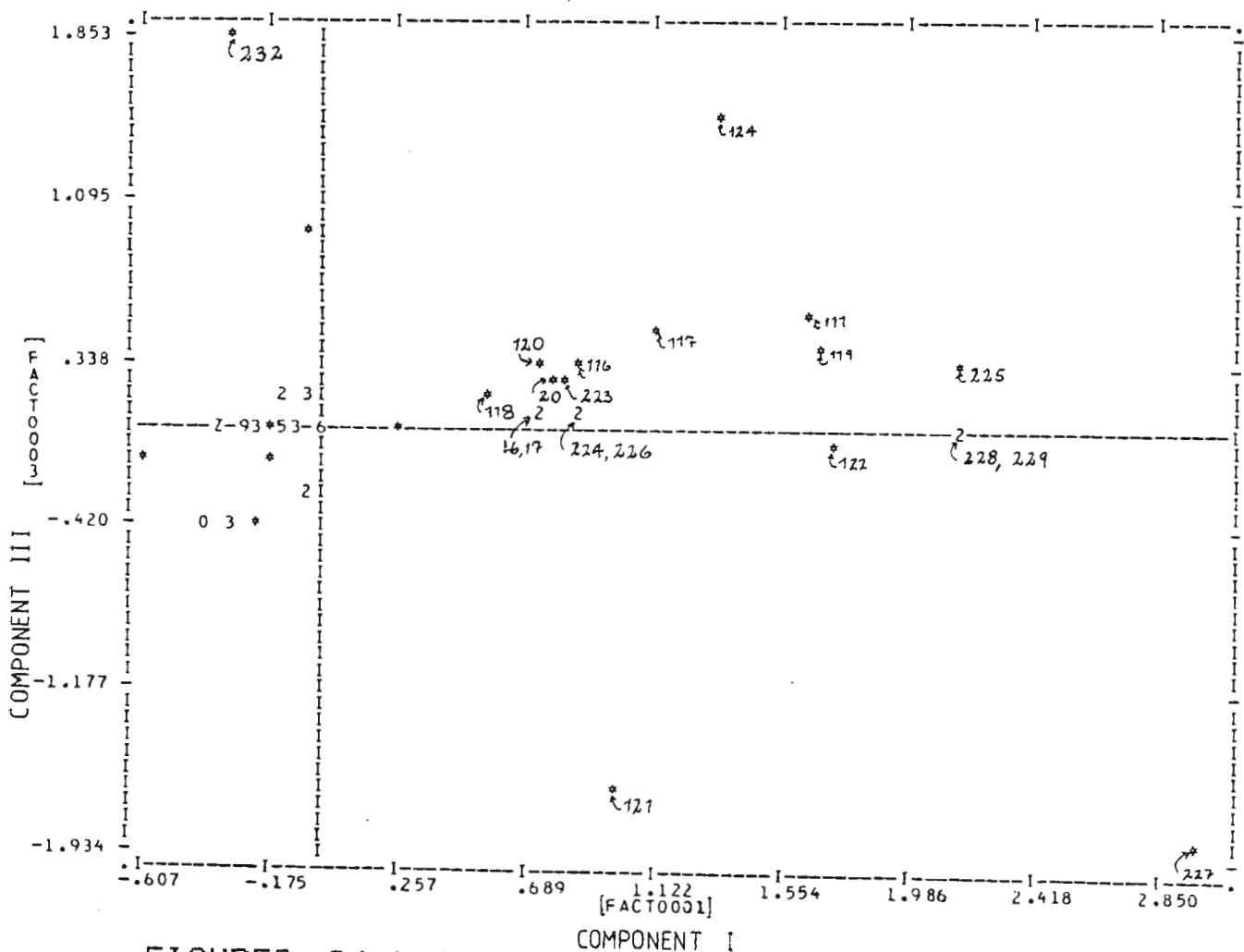
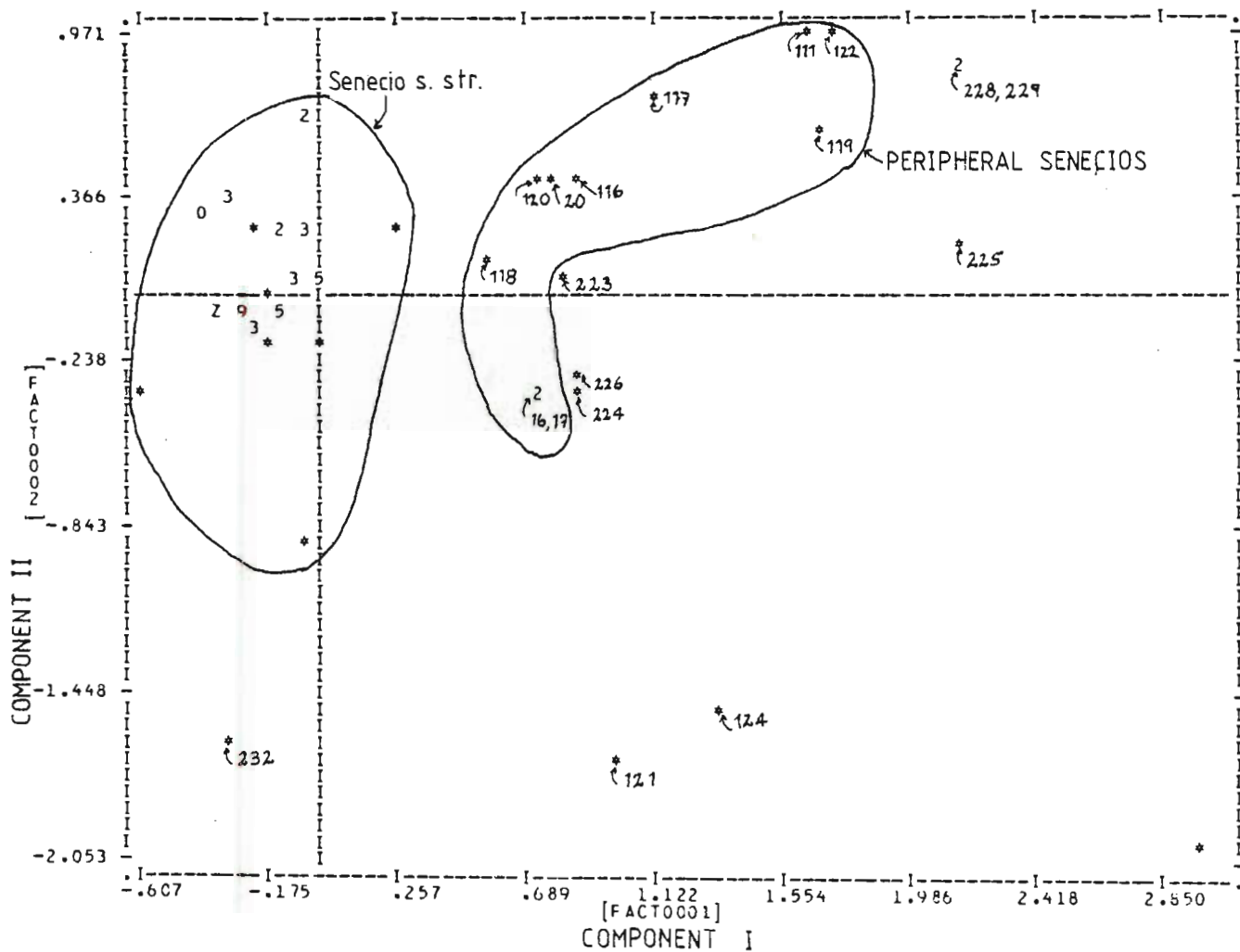
FIGURE 35. The species description of *Senecio vulgaris* L., the type species of *Senecio* L. (Linnaeus, 1753).

PLOTTING MAP FOR FACT0001 VS FACT0002.

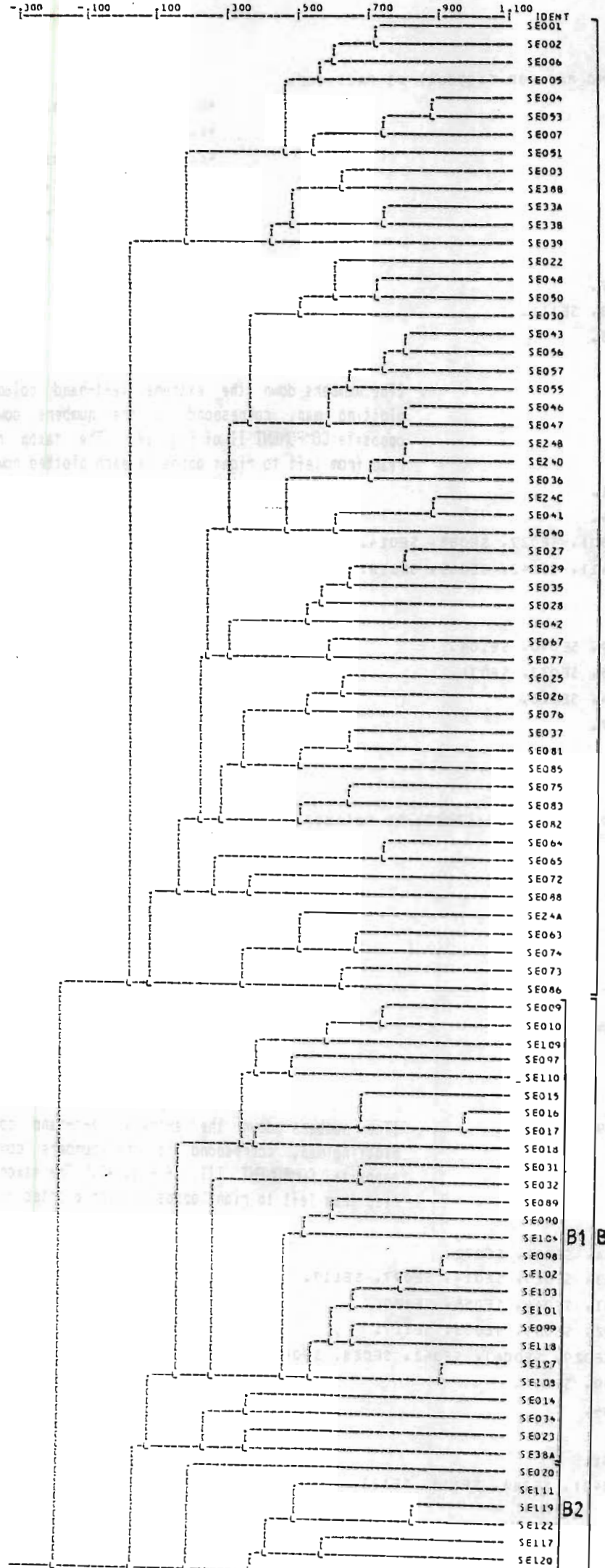
SE111, SE122.
 (KL229, KL228).
 SE117.
 (SE075, SE047).
 SE119.
 SE120, SE020, SE116.
 (SE046, SE041, SE043).
 (SE036, SE248, SE023, SE057, SE24C, SE24D, SE040, SE38A, SE002, SE056).
 SE108, (SE072, SE055), (SE086, SE083, SE026), SE216.
 CR225.
 SE118.
 (SE028, SE085, SE025), (SE031, SE042, SE33A, SE104, SE076), SE223.
 SE010.
 (SE200, SE244, SE022, SE007, SE004, SE027, SE029, SE030, SE032, SE338, SE034, SE003, SE388, SE081,
 SE077, SE051, SE063, SE064, SE065, SE067, SE001, SE073, SE048, SE035, SE210, SE090, SE220, SE089,
 SE088, SE201, SE050, SE212, SE213, SE215, SE203, SE202, SE204, SE219, SE217), (SE014, SE053, SE082,
 SE101, SE074, SE039, SE214, SE009, SE037), (SE102, SE103, SE097, SE098, SE099).
 (SE107, SE109, SE015).
 SE006, SE110.
 EM226.
 SE005, (SE017, SE016), SE224.
 SE018.
 SE124.
 CI232.
 SE121. [The numbers down the extreme left-hand column of this plotting map, correspond to the
 GY227. numbers down the axis opposite COMPONENT II of Fig. 36. The taxon numbers are read from left
 to right opposite each plotted row].

PLOTTING MAP FOR FACT0001 VS FACT0003.

CI232.
 SE124.
 SE018.
 SE111.
 SE117.
 SE119.
 SE120, SE116, CR225.
 SE020, SE223.
 (SE055, SE072), (SE083, SE026, SE086), SE118.
 (SE016, SE017), (SE224, EM226).
 (SE202, SE215, SE213, SE212, SE035, SE217, SE219, SE220, SE003, SE210, SE204, SE203, SE388, SE201,
 SE200, SE004, SE007, SE081, SE077, SE034, SE338, SE032, SE073, SE067, SE022, SE055, SE050, SE051,
 SE064, SE063, SE090, SE089, SE088, SE048, SE227, SE244, SE029, SE030, SE001), (SE053, SE037, SE074,
 SE039, SE101, SE082, SE014, SE009, SE214), (SE107, SE109, SE015), SE10, (SE103, SE102, SE099,
 SE078, SE097), (SE025, SE025, SE028), (SE042, SE104, SE33A, SE110, SE031, SE076), SE216, (KL229,
 KL228).
 SE122.
 SE005, SE006.
 (SE075, SE047).
 (SE057, SE040, SE38A, SE036, SE023, SE002, SE240, SE24C, SE248, SE056), (SE046, SE043, SE041),
 SE108.
 SE121.
 GY227. [The numbers down the extreme left-hand column of this plotting map, correspond to the
 numbers down the axis opposite COMPONENT III of Fig. 37. The taxon numbers are read from
 left to right opposite each plotted row].



FIGURES 36 & 37. The first three principal component axes from analyzing all the taxa studied (Table 1) with respect to the six characters of senecioioid habit.



A

B1 B

B2

FIGURE 38. Phenogram of the Natal members of *Senecio s. str.* sensu Vincent and the peripheral senecios (Table 11), with respect to the thirty-six characters of taxonomic significance (Table 10), using UPGMA. Scale is level of correlation.

IDENT	LEVEL
SE001	.7281
SE002	.5983
SE006	.5578
SE005	.4640
SE004	.8786
SE093	.7482
SE007	.5471
SE051	.1841
SE003	.6272
SE368	.4712
SE33A	.7446
SE338	.4172
SE039	.0178
SE022	.5970
SE048	.7254
SE050	.4924
SE030	.3690
SE043	.7922
SE056	.7449
SE057	.6455
SE055	.5770
SE046	.7929
SE047	.2952
SE248	.8061
SE240	.7036
SE036	.4548
SE24C	.8719
SE041	.6023
SE040	.2489
SE027	.8081
SE029	.6306
SE035	.5560
SE028	.5213
SE042	.3052
SE067	.5749
SE077	.2164
SE025	.6215
SE026	.5158
SE076	.3426
SE037	.6441
SE081	.5076
SE085	.2786
SE075	.6470
SE083	.4929
SE082	.1505
SE064	.7339
SE065	.2659
SE072	.3615
SE048	.0780
SE24A	.4949
SE063	.6638
SE074	.3494
SE073	.6178
SE086	.1815
SE009	.7482
SE010	.5717
SE109	.3812
SE097	.4758
SE110	.3442
SE015	.6793
SE016	.9754
SE017	.3880
SE018	.1697
SE031	.6836
SE032	.2633
SE089	.6034
SE090	.5162
SE104	.4640
SE098	.9182
SE102	.7977
SE103	.6573
SE101	.5955
SE099	.6554
SE118	.5469
SE107	.9156
SE108	.0757
SE014	.3652
SE034	.2406
SE023	.3593
SE38A	.0339
SE020	.1933
SE111	.5071
SE119	.8376
SE122	.4162
SE117	.5734
SE120	.3783

PLOTTING MAP FOR FACT0001 VS FACT0002.

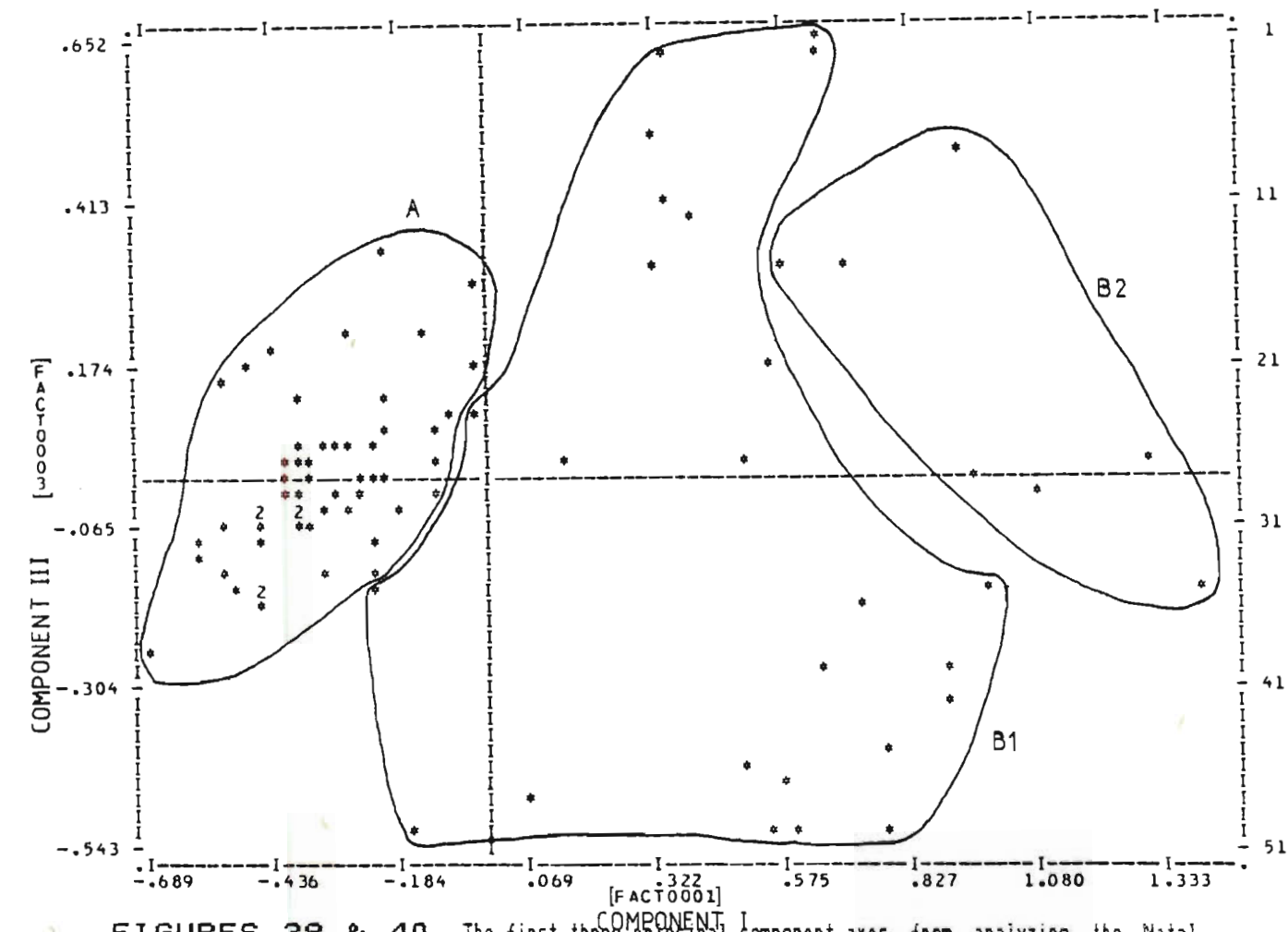
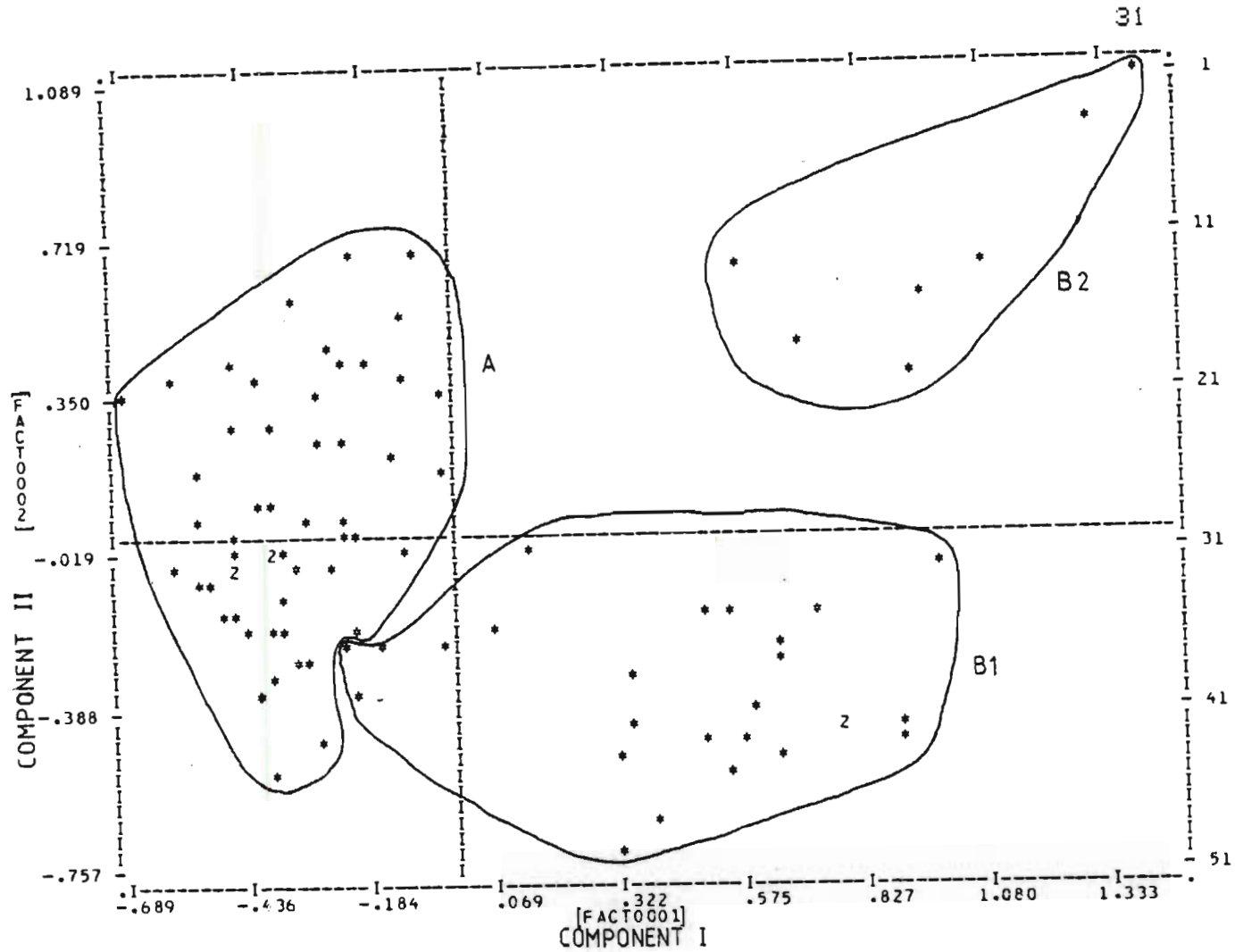
- | | | | |
|-----|---|-----|-------------------------------|
| 22. | SE122. | 40. | SE001, SE023. |
| 19. | SE119. | 41. | SE108. |
| 5. | SE055, SE075. | 42. | SE018, (SE101, SE103), SE102. |
| 20. | SE020, SE117. | 43. | SE388, SE097, SE107, SE098. |
| 6. | SE056, SE120. | 44. | SE010, SE099. |
| 3. | SE025. | 45. | SE003, SE109. |
| 8. | SE081, SE116. | 48. | SE009. |
| 9. | SE043, SE046, SE047. | 50. | SE110. |
| 0. | SE076, SE057, SE083, SE111. | | |
| 1. | SE077, SE026, SE085. | | |
| 3. | SE037, SE048. | | |
| 4. | SE028, SE064. | | |
| 5. | SE063. | | |
| 6. | SE036, SE086. | | |
| 8. | SE035, SE082. | | |
| 9. | SE240, SE24A, SE051. | | |
| 0. | SE248, SE072, SE074. | | |
| 1. | SE030, (SE029, SE050), SE027, SE088, SE014. | | |
| 2. | SE067, (SE022, SE041), SE042, SE065, SE118. | | |
| 3. | SE33A, SE24C. | | |
| 4. | SE053. | | |
| 5. | SE338, SE040, SE089, SE090, SE104. | | |
| 6. | SE039, SE004, SE005, SE073, SE031. | | |
| 7. | SE38A, SE032, SE034, SE016. | | |
| 9. | SE007, SE002, SE017. | | |
| 9. | SE006, SE015. | | |

[The numbers down the extreme left-hand column of this plotting map, correspond to the numbers down the axis opposite COMPONENT II of Fig. 39. The taxon numbers are read from left to right opposite each plotted row].

PLOTTING MAP FOR FACT0001 VS FACT0003.

- | | | | |
|-----|--|-----|-----------------------------|
| 1. | SE017. | 36. | SE037, SE104. |
| 2. | SE018, SE016. | 39. | SE077. |
| 7. | SE110. | 40. | SE099, SE102. |
| 8. | SE111. | 42. | SE098. |
| 11. | SE015. | 45. | SE103. |
| 12. | SE009. | 46. | SE089. |
| 14. | SE073. | 47. | SE107. |
| 15. | SE010, SE020, SE116. | 48. | SE031. |
| 16. | SE086. | 50. | SE032, SE090, SE108, SE101. |
| 19. | SE388, SE063. | | |
| 20. | SE039. | | |
| 21. | SE338, SE085, SE109. | | |
| 22. | SE33A. | | |
| 23. | SE003, SE074. | | |
| 24. | SE075, SE034. | | |
| 25. | SE023, SE083. | | |
| 26. | SE082, SE007, SE24A, SE026, SE072. | | |
| 27. | SE001, SE004, SE053, SE025, SE014, SE097, SE119. | | |
| 28. | SE057, SE027, SE081, SE046, SE055, SE120. | | |
| 29. | SE035, SE048, SE002, SE065, SE088, SE117. | | |
| 30. | (SE248, SE030), (SE029, SE006), SE042, SE028, SE047. | | |
| 31. | SE240, SE040, SE050, SE005. | | |
| 32. | SE076, SE022, SE064. | | |
| 33. | SE067. | | |
| 34. | SE036, SE056, SE051. | | |
| 35. | SE24C, (SE041, SE043), SE38A, SE118, SE122. | | |

[The numbers down the extreme left-hand column of this plotting map, correspond to the numbers down the axis opposite COMPONENT III of Fig. 40. The taxon numbers are read from left to right opposite each plotted row].



FIGURES 39 & 40. The first three principal component axes from analyzing the Natal members of *Senecio* s. str. sensu Vincent and the peripheral senecios (Table 11), with respect to the thirty-six characters of taxonomic significance (Table 10) (unrotated); 39, first and second principal component axes; 40, first and third principal component axes.

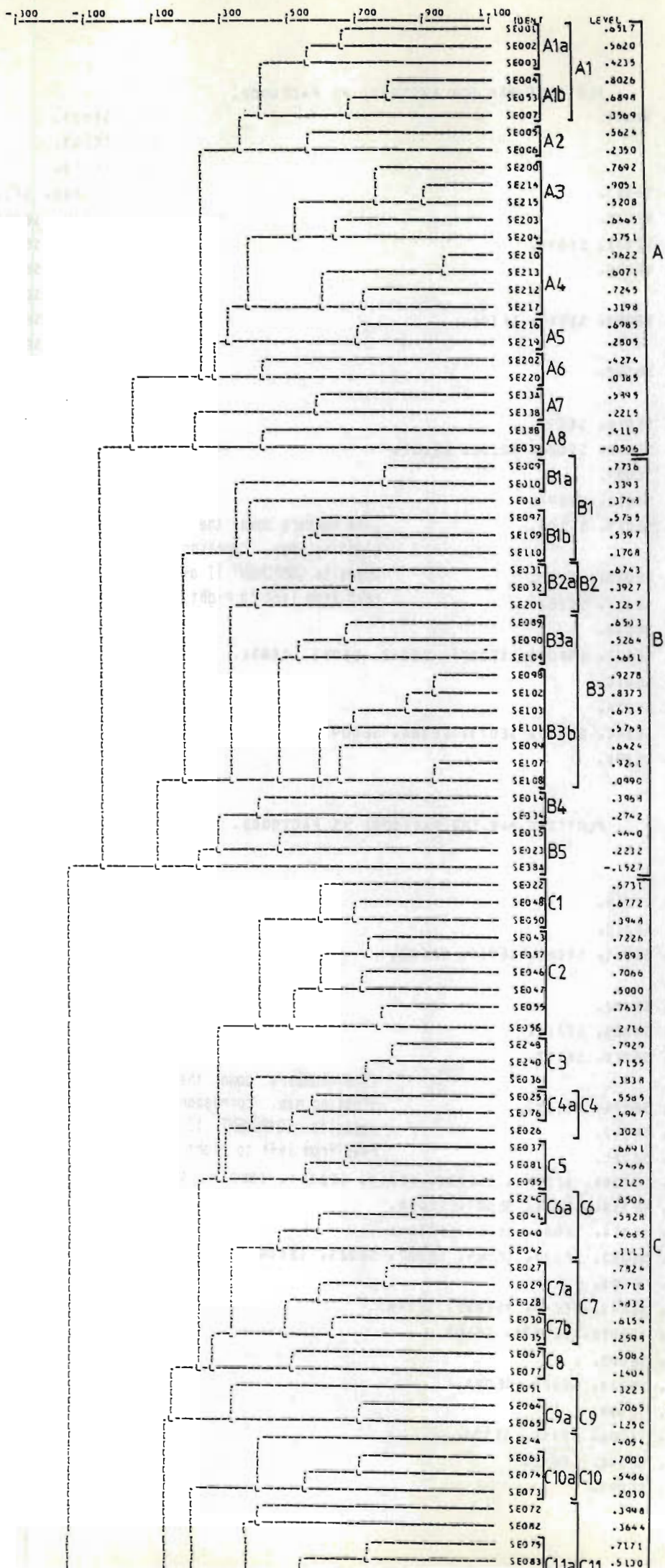


FIGURE 41. Phenogram of the Natal members of *Senecio* s. str. sensu Vincent, together with the Cape and non-southern African *Senecio* s. str. sensu Vincent (Table 12), with respect to the thirty-five characters of taxonomic significance (Table 10), using UPGMA. Scale is level of correlation.

PLOTTING MAP FOR FACT0001 VS FACT0002.

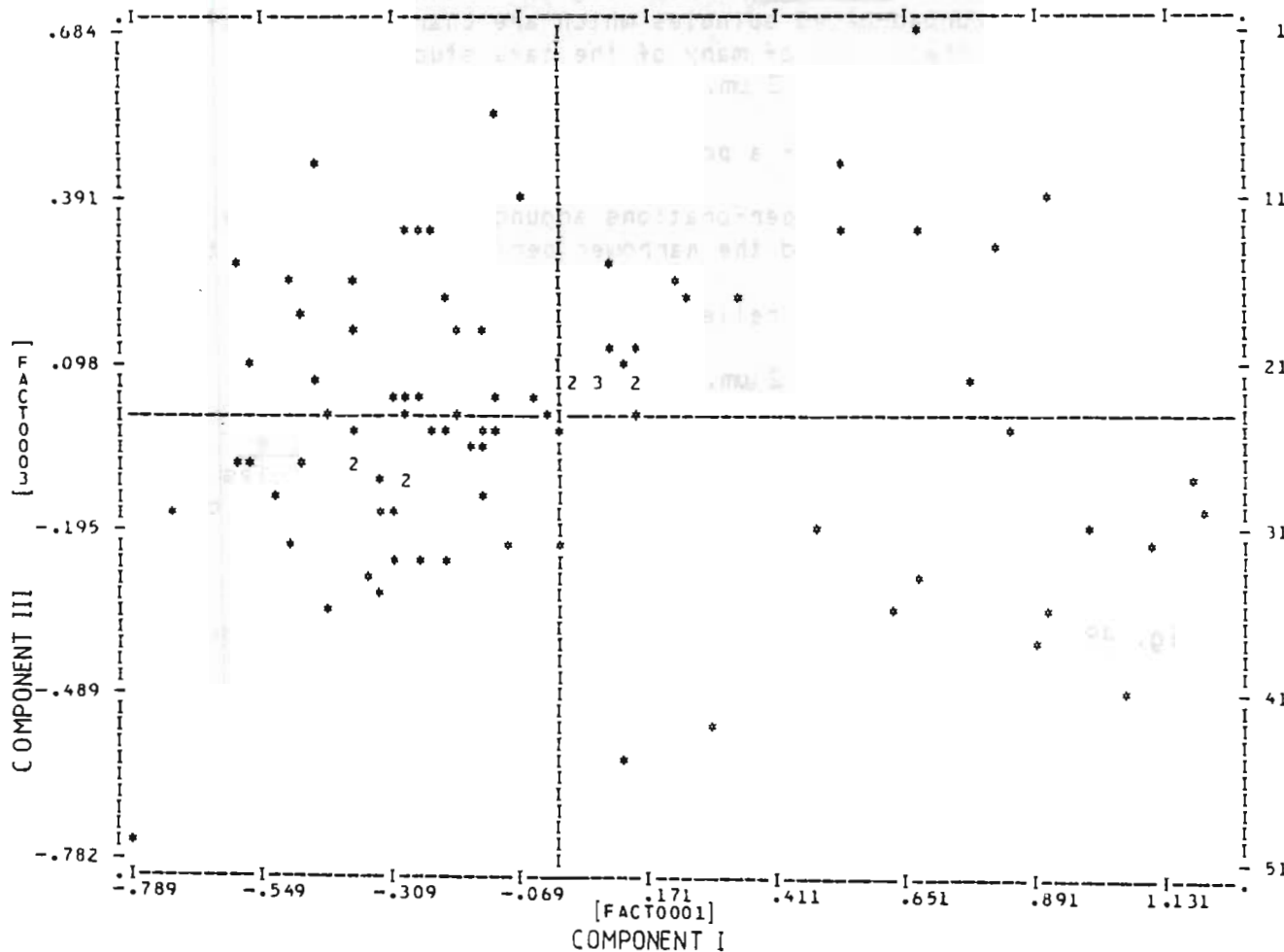
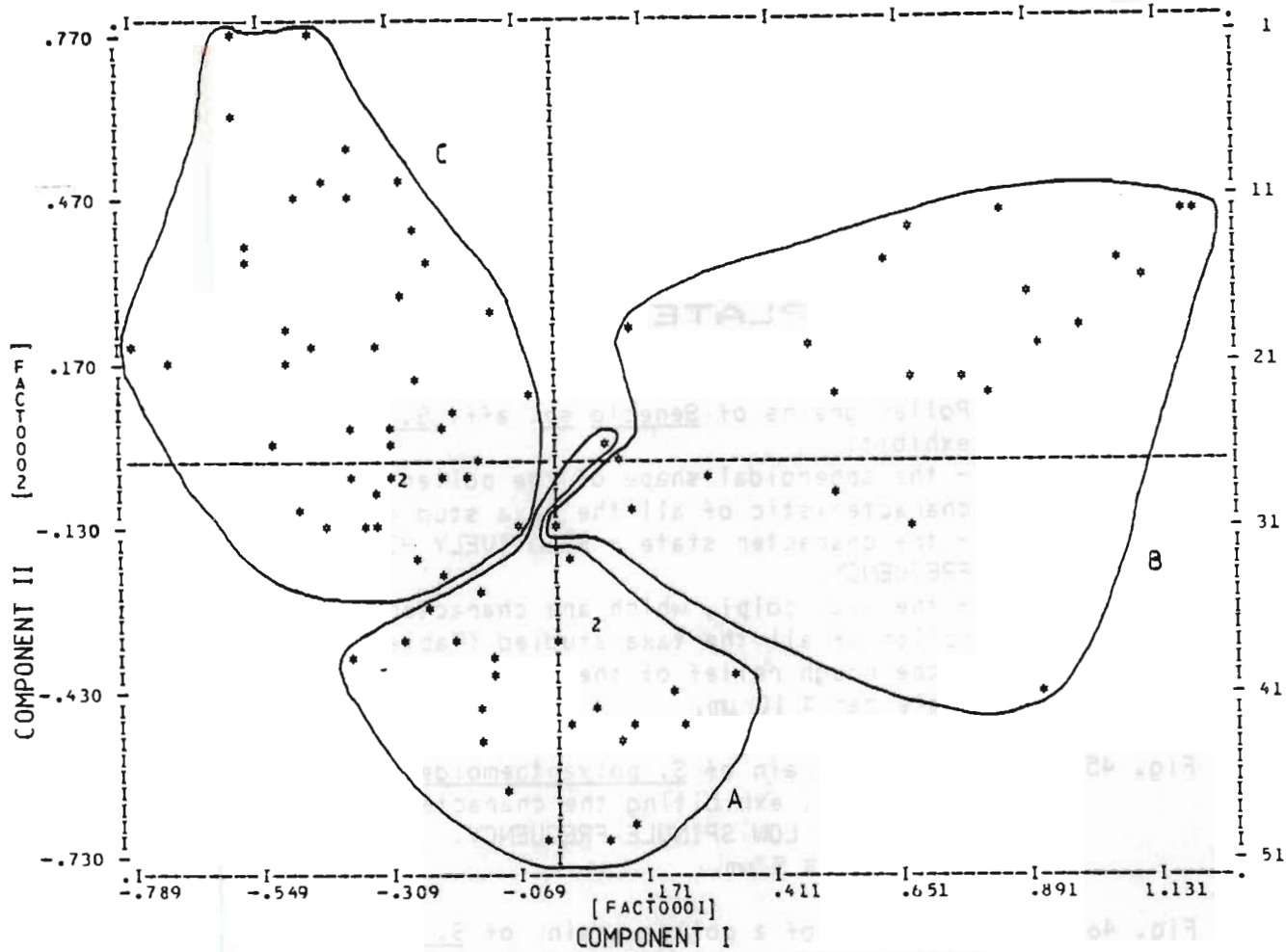
- | | |
|--|--------------------------|
| 1. SE055, SEC75. | 34. SE039. |
| 6. SE056. | 35. SE203. |
| 8. SE047. | 36. SE053. |
| 10. SE046, SEC83. | 37. (SE200, SE214). |
| 11. SE081, SE025. | 38. SE338, SE004, SE023. |
| 12. SE104, SE102, SE098. | 39. SE33A, SE002. |
| 13. SE085, SEC90. | 40. SE007, SE217. |
| 14. SE057. | 41. SE213, SE110. |
| 15. SE043, SE063, SE089, SE101. | 42. SE005, SE215. |
| 16. SE103. | 43. SE388, SE212, SE210. |
| 17. SE064, SE10E. | 44. SE001, SE22C. |
| 18. SE086. | 47. SE006. |
| 19. SE026, SE014, SE099. | 49. SE216. |
| 20. SE077, SEC48, SE028, SE201, SE107. | 50. SE003, SE219. |
| 21. SE076, SE037. | |
| 22. SE24A, SE018, SE097. | |
| 23. SE088, SEC15, SE109. | |
| 24. SE074. | |
| 25. SE035, SE082, SE072. | |
| 26. SE036, SE029, SE202. | |
| 27. SE065, SE032. | |
| 28. SE248, SEC22, (SE050, SE027), SE042, SE051, SE031. | |
| 29. SE041, SE010. | |
| 30. SE240, SE034. | |
| 31. SE067, SE24C, SE030, SE073, SE38A, SE009. | |
| 33. SE040, SE204. | |

[The numbers down the extreme left-hand column of this plotting map, correspond to the numbers down the axis opposite COMPONENT II of Fig. 42. The taxon numbers are read from left to right opposite each plotted row].

PLOTTING MAP FOR FACT0001 VS FACT0003.

- | | |
|--|--------------------------|
| 1. SE018. | 35. SE041. |
| 6. SE086. | 36. SE067, SEC89, SE107. |
| 9. SE075, SE015. | 38. SE108. |
| 11. SE073, SE110. | 41. SE101. |
| 13. SE083, SE085, SE063, SE010, SE009. | 43. SE031. |
| 14. SE109. | 45. SE032. |
| 15. SE055, SE202. | 50. SE077. |
| 16. SE026, SE025, SE213. | |
| 17. SE072, SE21C, SE217. | |
| 18. SE081. | |
| 19. SE047, SE074, SE203. | |
| 20. SE219, SE212. | |
| 21. SE057, SE22C. | |
| 22. SE048, (SE388, SE204), (SE200, SE214, SE215), (SE014, SE216), SE097. | |
| 23. SE082, SE338, SE24A, SE007, SE088. | |
| 24. SE046, SE064, SE004, SE003, SE034. | |
| 25. SE33A, SE053, SE039, SE065, SE002, SE023, SE104. | |
| 26. SE051, SE001. | |
| 27. SE056, SE043, SE240, (SE035, SE248). | |
| 28. SE030, (SE050, SE027), SE102. | |
| 29. SE036, SE005. | |
| 30. SE076, SE028, SE029, SE098. | |
| 31. SE201, SE099. | |
| 32. SE037, SE006, SE38A, SE103. | |
| 33. SE022, SE040, SE042. | |
| 34. SE24C, SE090. | |

[The numbers down the extreme left-hand column of this plotting map, correspond to the numbers down the axis opposite COMPONENT III of Fig. 43. The taxon numbers are read from left to right opposite each plotted row].



FIGURES 42 & 43. The first three principal component axes from analyzing the Natal members of *Senecio* s. str. sensu Vincent, together with the Cape and non-southern African senecios (all *Senecio* s. str. sensu Vincent) (Table 12) (unrotated): 42. first and second principal

PLATE I I

- Fig. 44 Pollen grains of Senecio sp. aff. S. speciosus to exhibit:
- the spheroidal shape of the pollen, which is characteristic of all the taxa studied (Table 1).
- the character state - RELATIVELY HIGH SPINULE FREQUENCY.
- the wide colpi, which are characteristic of the pollen of all the taxa studied (Table 1).
- the rough relief of the exine in the colpi.
Scale bar \cong 10 μ m.
- Fig. 45 A pollen grain of S. polyanthemoides Schultz Bipontinus, exhibiting the character state - RELATIVELY LOW SPINULE FREQUENCY.
Scale bar \cong 5 μ m.
- Fig. 46 A portion of a pollen grain of S. polyodon DC. var. polyodon, exhibiting the moderately broad-based spinules which are characteristic of the pollen of many of the taxa studied.
Scale bar \cong 2 μ m.
- Fig. 47 A portion of a pollen grain of S. vulgaris L., exhibiting:
- the wide perforations around the bases of the spinules and the narrower perforations between the spinules.
- the rough relief of the exine between the spinules.
Scale bar \cong 2 μ m.
- Fig. 48 A portion of a pollen grain of S. desfontainei Druce, exhibiting the very broad-based spinules which are characteristic of the pollen of many of the taxa studied.
Scale bar \cong 2 μ m.
- Fig. 49 A transmission electron micrograph of a sectioned portion of an intercolpoid region of S. desfontainei, exhibiting the presence of perforations between the spinules.
Scale bar \cong 2 μ m.

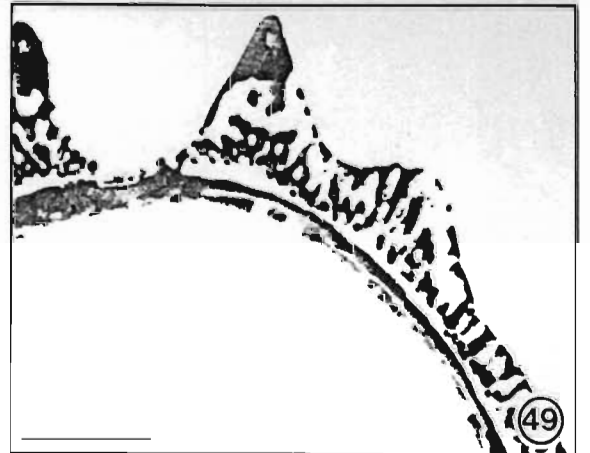
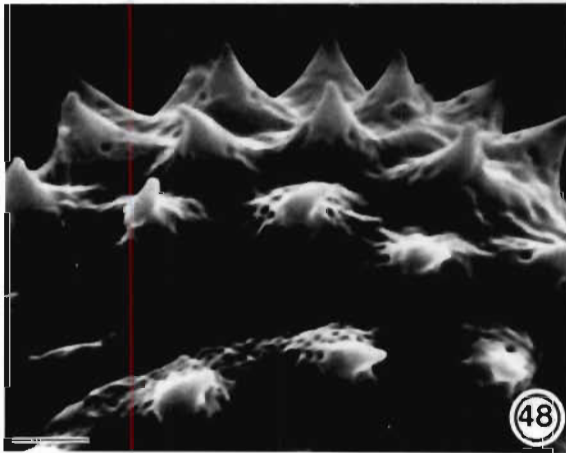
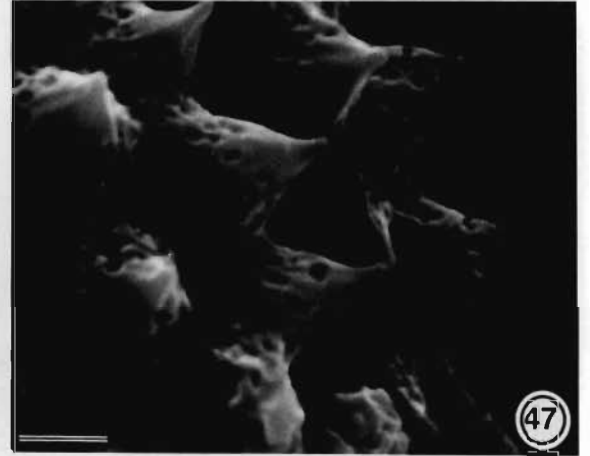
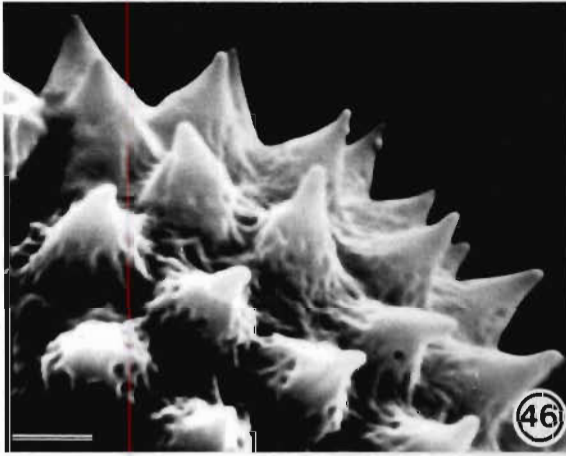
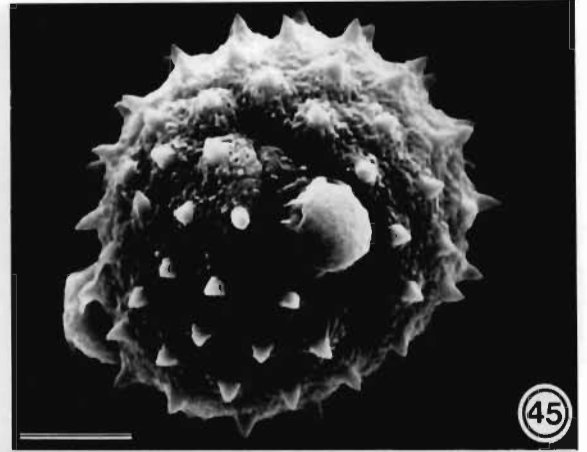
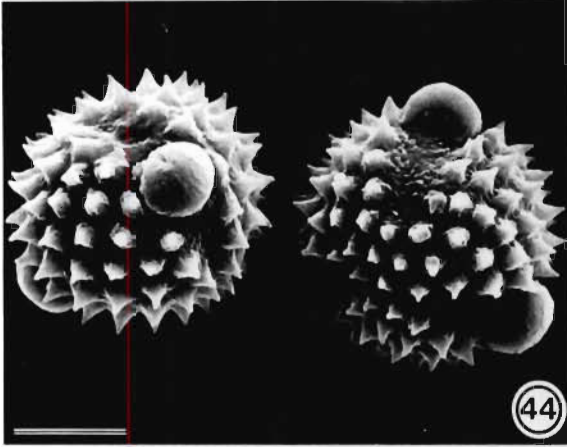


TABLE 1

This is a complete list of the species of Senecio and related genera included in this study. (SUM = 101)

NATAL SENECIOS

The numbers in the left hand margin correspond to the species numbers for Senecio in Hilliard (1977).

1. S. madaqascariensis Poinet
2. S. skirrhodon DC.
3. S. inaequidens DC.
4. S. harveianus MacOwan
5. S. polyanthemoides Schultz Bipontinus
6. S. pterophorus DC.
7. S. juniperinus L.f.
9. S. serratuloides DC.
10. S. microglossus DC.
14. S. panduriformis Hilliard
15. S. achilleifolius DC.
16. S. tanacetopsis Hilliard
17. S. seminiveus Wood & Evans
18. S. haygarthii Hilliard
20. S. medley-woodii Hutchinson
22. S. purpureus L.
23. S. gerrardii Harvey
24. S. erubescens Aiton
 - var. erubescens (24A)
 - var. crepidifolius DC. (24B)
 - var. incisus DC. (24C)
 - var. dichotomus DC. (24D)
25. S. sandersonii Harvey
26. S. glanduloso-lanosus Thellung
27. S. variabilis Schultz Bipontinus

TABLE 1 continued

28. S. umgeniensis Thellung
29. S. glanduloso-pilosus Volkens & Muschler
30. S. subcoriaceus Schlechter
31. S. cathcartensis O. Hoffmann
32. S. ngoyanus Hilliard
33. S. polyodon DC.
 var. polyodon (33A)
 var. subglaber (O.Kuntze) Hilliard & Burtt (33B)
34. S. sp. aff. S. speciosus
35. S. speciosus Willdenow
36. S. macrocephalus DC.
37. S. barbatus DC.
38. S. poseideonis Hilliard & Burtt
 radiate forms (38A)
 discoid forms (38B)
39. S. sp. aff. S. poseideonis
40. S. arabidifolius O. Hoffmann
41. S. ryncholaenus DC.
42. S. subrubriflorus O. Hoffmann
43. S. hastatus L.
46. S. hirsutilobus Hilliard
47. S. ingeliensis Hilliard
48. S. natalicola Hilliard
50. S. hieracioides DC.
51. S. consanguineus DC.
53. S. chrysocoma Meerburgh
55. S. asperulus DC.
56. S. hypochoerideus DC.
57. S. mooreanus Hutchinson
63. S. paludaffinis Hilliard
64. S. affinis DC.
65. S. lydenburgensis Hutchinson & Burtt Davy
67. S. anomalochrous Hilliard
72. S. brevidentatus M.D. Henderson

TABLE 1 continued

73. S. praeteritus Killick
 74. S. coronatus (Thunberg) Harvey
 75. S. macrospermus DC.
 76. S. dregeanus DC.
 77. S. discodregeanus Hilliard & Burt
 81. S. caudatus DC.
 82. S. mauricei Hilliard & Burt
 83. S. saniensis Hilliard & Burt
 85. S. heliopsis Hilliard & Burt
 86. S. albanensis DC. var. doroniciflorus (DC.) Harvey
 88. S. inornatus DC.
 89. S. oxyriifolius DC.
 90. S. rhomboideus Harvey
 97. S. bupleuroides DC.
 98. S. urophyllus Conrath
 99. S. scitus Hutchinson & Burt Davy
 101. S. glaberrimus DC.
 102. S. latifolius DC.
 103. S. retrorsus DC.
 104. S. othonniflorus DC.
 107. S. brachypodus DC.
 108. S. pleistocephalus Spencer Moore
 109. S. mikanioides (Otto ex) Harvey
 110. S. deltoideus Lessing
 111. S. tamoides DC.
 116. S. helminthioides (Schultz Bipontinus) Hilliard
 117. S. barbertonicus Klatt
 118. S. breviflorus Hilliard
 119. S. viminalis Bremekamp
 120. S. radicans (L.f.) Schultz Bipontinus
 121. S. cissampelinus (DC.) Schultz Bipontinus
 122. S. fulgens (J.D. Hooker) Nicholson
 124. S. transvaalensis Bolus

TABLE 1 continued

The numbers in the left hand margin of all the following species are for identification purposes only.

CAPE HETEROCHROMOUS NON-YELLOW (PURPLE) SENECIOS

200. S. grandiflorus Berg.
 201. S. cakilefolius DC.
 202. S. arenarius Thunb.
 203. S. multibracteatus Harv.
 204. S. elegans L.

NON-SOUTHERN AFRICAN SENECIOS

210. S. vulgaris L. (U.S.A., U.K., Europe & E. Asia)
 212. S. viscosus L. (U.S.A. & U.K.)
 213. S. gallicus Chaix (Spain & Portugal)
 214. S. californicus DC. (U.S.A.)
 215. S. vernalis Waldst. & Kit. (Europe)
 216. S. sylvaticus L. (U.S.A. & U.K.)
 217. S. desfontainei Druce (Middle East & E. Asia)
 219. S. erectitoides Bak. (Madagascar)
 220. S. laetus Willd. (Australia)

SENECIOS OF UNCERTAIN TAXONOMIC POSITION AND OTHER GENERA IN THE TRIBE SENECEONEAE

SENECIOS OF UNCERTAIN TAXONOMIC POSITION (inc. sed. - C. Jeffrey, pers. comm.)

223. S. syriacifolius O. Hoffm.
 224. S. hockii De Wild. & Muschl.

TABLE 1 continued

OTHER GENERA IN THE TRIBE SENECEONEAE

225. Crassocephalum cernuum (L.f.) Moench
226. Emilia flammea Cass.
227. Gynura auriculata Cass.
228. Kleinia grandiflora ined.
(syn. Notonia grandiflora DC., Jeffrey, ined.)
229. Kleinia neriifolia Haw.
232. Cineraria geifolia L.

TABLE 2

This is a complete list of all the characters investigated in this study of Senecio and related genera.

VEGETATIVE HABIT		CHAR 008
ROOTSTOCK		CHAR 009
PLANT HEIGHT (MAX.)		CHAR 010
LEAF DISTRIBUTION		CHAR 011
LEAF LENGTH (MAX.):	RADICAL	CHAR 012
	CAULINE	CHAR 013
LEAF WIDTH (MAX.):	RADICAL	CHAR 014
	CAULINE	CHAR 015
LEAF SHAPE:	RADICAL	CHAR 016
	CAULINE	CHAR 017
LEAF APEX:	RADICAL	CHAR 018
	CAULINE	CHAR 019
LEAF MARGIN:	RADICAL	CHAR 020
	CAULINE	CHAR 021
LEAF BASE:	RADICAL	CHAR 022
	CAULINE	CHAR 023
LEAF VENATION:	RADICAL	CHAR 024
	CAULINE	CHAR 025
LEAF TEXTURE:	RADICAL	CHAR 026
	CAULINE	CHAR 027
LEAF ATTACHMENT:	RADICAL	CHAR 028
	CAULINE	CHAR 029
LEAF PUBESCENCE:	ABAXIAL - RADICAL	CHAR 030
	- CAULINE	CHAR 031
	ADAXIAL - RADICAL	CHAR 032
	- CAULINE	CHAR 033

TABLE 2 continued

LEAF TRICHOMES:	BASE	CHAR 034
	APEX	CHAR 035
	APENDAGES	CHAR 036
	GLANDULAR	CHAR 037
FLOWERING STEM:	APPEARANCE	CHAR 038
	PUBESCENCE	CHAR 039
	GLANDULAR	CHAR 040
PEDUNCLES:	APPEARANCE	CHAR 041
LEAF STOMATA		CHAR 042
INFLORESCENCE BRACTS		CHAR 043
CAPITULA:	LENGTH	CHAR 044
	DIAMETER	CHAR 045
	RADIATE/DISCOID	CHAR 046
	HOMO/HETEROGAMOUS	CHAR 047
	ARRANGEMENT	CHAR 048
INVOLUCRE SHAPE		CHAR 049
INVOLUCRAL BRACTS:	NUMBER	CHAR 050
	LENGTH	CHAR 051
	SHAPE	CHAR 052
	PUBESCENCE	CHAR 053
	TRICHOMES	CHAR 054
	APEX VESTITURE	CHAR 055
	LENGTH REL. TO DISC FLORETS	CHAR 056
	GLANDULAR	CHAR 057
	COLOUR	CHAR 058
CALYCVULUS BRACTS:	NUMBER	CHAR 059
	LENGTH	CHAR 060
	POSITION	CHAR 061
	PUBESCENCE	CHAR 062
	TRICHOMES	CHAR 063
	APEX VESTITURE	CHAR 064
	GLANDULAR	CHAR 065
	COLOUR	CHAR 066
	SHAPE	CHAR 067

TABLE 2 continued

FLOWER COLOUR:	RAY FLORETS	CHAR 068
	DISC FLORETS	CHAR 069
RAY COROLLA:	FLORET NUMBER	CHAR 070
	COROLLA LENGTH	CHAR 071
	COROLLA SHAPE	CHAR 072
	LIMB VENATION	CHAR 073
	COROLLA TRICHOMES	CHAR 074
	RESINOUS	CHAR 075
	LIMB APEX	CHAR 076
	LIMB SHAPE	CHAR 077
	LIMB EPID. CELL SHAPE	CHAR 078
	LIMB ORIENTATION	CHAR 079
DISC COROLLA:	FLORET NUMBER	CHAR 080
	COROLLA LENGTH	CHAR 081
	COROLLA SHAPE	CHAR 082
	COROLLA VENATION	CHAR 083
	COROLLA TRICHOMES	CHAR 084
	RESINOUS	CHAR 085
	LOBE APEX	CHAR 086
GYNOECIUM (RAY):	STYLE-ARM LENGTH	CHAR 087
	STYLE-ARM APICES	CHAR 088
	STIGMATIC SURFACE	CHAR 089
	STYLE BASE	CHAR 090
	NECTARY	CHAR 091
	OVARY VESTITURE	CHAR 092
	OVARY WALL CRYSTALS	CHAR 093
(DISC):	STYLE-ARM LENGTH	CHAR 094
	STYLE-ARM APICES	CHAR 095
	STIGMATIC SURFACE	CHAR 096
	STYLE BASE	CHAR 097
	NECTARY	CHAR 098
	OVARY VESTITURE	CHAR 099
	OVARY WALL CRYSTALS	CHAR 100

TABLE 2 continued

DISC COROLLA:	DISTAL EPIDERMAL CELL SHAPE	CHAR 101
	PROXIMAL EPIDERMAL CELL SHAPE	CHAR 102
ANDROECIUM (DISC):	ANTHER APEX	CHAR 103
	ANTHER BASE APPEARANCE	CHAR 104
	ANTHER LENGTH	CHAR 105
ENDOTHECIAL TISSUE:	CELL SHAPE	CHAR 106
	CELL WALL CONFIGURATION	CHAR 107
FILAMENT COLLARS:	LENGTH	CHAR 108
	BASAL WIDTH	CHAR 109
	SHAPE	CHAR 110
CYPSELA (RAY):	LENGTH	CHAR 111
	SHAPE	CHAR 112
	RIBBING	CHAR 113
	VESTITURE	CHAR 114
	PERICARP CELLS - SHAPE	CHAR 115
(DISC):	LENGTH	CHAR 116
	SHAPE	CHAR 117
	RIBBING	CHAR 118
	VESTITURE	CHAR 119
	PERICARP CELLS - SHAPE	CHAR 120
PAPPUS:	UNIFORM/DIMORPHIC	CHAR 121
PAPPUS SETAE (RAY):	LENGTH	CHAR 122
	APPEARANCE	CHAR 123
	DISTAL CELL NUMBER	CHAR 124
	APEX	CHAR 125
(DISC):	LENGTH	CHAR 126
	APPEARANCE	CHAR 127
	DISTAL CELL NUMBER	CHAR 128
	APEX	CHAR 129

TABLE 2 continued

The following are inadmissible characters in that they are meaningless characters as defined by Sneath and Sokal (1973):

SPECIES NUMBER	CHAR 001
COLLECTOR	CHAR 002
COLLECTOR'S NUMBER	CHAR 003
HERBARIUM	CHAR 004
ALTITUDE RANGE	CHAR 005
DISTRIBUTION	CHAR 006
HABITAT(S)	CHAR 007
FLOWERING TIME	CHAR 130

TABLE 3

The coincidence and occurrence of some of the leaf trichomes found by Drury and Watson (1965), of some Eurasian senecios, amongst the taxa studied (Table 1).

DRURY & WATSON "HAIR" TYPE	VINCENT TRICHOME TYPE	CHARACTER/STATE	SPECIES
2	035/35		<u>S. tanacetopsis</u>
3	034/23		<u>S. achilleifolius</u>
4	035/23		<u>S. asperulus</u>
7	035/38		<u>S. elegans</u>
	035/40		<u>S. vulgaris</u>
			<u>S. gallicus</u>
			<u>S. hockii</u>
8	035/22		<u>S. serratuloides</u>
			<u>S. mooreanus</u>
			<u>S. macrospermus</u>
			<u>S. albanensis</u>
			var. <u>doroniciflorus</u>
			<u>S. inornatus</u>
			<u>S. deltoideus</u>
			<u>S. vernalis</u>
			<u>S. sylvaticus</u>
			<u>S. desfontainei</u>
			<u>Crassocephalum cernuum</u>

TABLE 4

An analysis of the character states of the six taxonomically significant characters of generic importance (CHAR's 095, 103, 107, 108, 110 & 117), with respect to the concept of Senecio sensu stricto sensu Vincent.

<u>CHARACTER AND STATE</u>	<u>STATUS</u>	
	<u>Senecio s. str.</u>	<u>Senecio</u> (Peripheral)
GYNOECIUM (DISC): STYLE-ARM APICES		
(CHAR 095)		
Character states - 09, 11, 13 & 14	YES	NO
Character states - 10, 15, 16, 17 & 19	NO	YES
Character states 20, 21 and 22 are outside the concept of <u>Senecio</u> sensu Vincent.		
ANDROECIUM (DISC): ANTHOR APEX		
(CHAR 103)		
Character state - 01	YES	NO
Character state - 03	NO	YES
Character states 04 and 05 are outside the concept of <u>Senecio</u> sensu Vincent.		
ENDOTHECIAL TISSUE: CELL WALL CONFIGURATION		
(CHAR 107)		
Character state - 06	YES	YES
Character state 10 & 11 are outside the concept of <u>Senecio</u> sensu Vincent.		
FILAMENT COLLARS: LENGTH		
(CHAR 108)		
Character states - 01, 02 & 03	YES	NO
Character states - 04 & 05	NO	YES
FILAMENT COLLARS: SHAPE		
(CHAR 110)		
Character states - 01, 02, 03, 04, 05 & 06	YES	YES
Character states 07, 08 and 09 are outside the concept of <u>Senecio</u> sensu Vincent.		
CYPSELA (DISC): SHAPE		
(CHAR 117)		
Character states - 01, 02 & 04	YES	YES
Character state - 05	NO	YES
Character state 06 is outside the concept of <u>Senecio</u> sensu Vincent.		

TABLE 5

This is a complete list of the species of Senecio included in this study (Table 1) arranged according to the new concept of Senecio sensu stricto sensu Vincent, together with an indication of which species are excluded from Senecio s. str. sensu Vincent. The listing of the character states after each group follows the order of the characters in Table 4.

The numbers in the left hand margin are for identification purposes only (see Table 1).

Senecio sensu stricto

GROUP I (character states: 09, 01, 06, 02, 01, 02)

1. S. madagascariensis Poinet
3. S. inaequidens DC.
4. S. harveianus MacOwan
5. S. polyanthemoides Schultz Bipontinus
7. S. juniperinus L.f.
22. S. purpureus L.
27. S. variabilis Schultz Bipontinus
24. S. erubescens Aiton var. erubescens (24A)
29. S. glanduloso-pilosus Volkens & Muschler
30. S. subconiacus Schlechter
32. S. ngoyanus Hilliard
33. S. polyodon DC. var. subgiaber (O.Kuntze) Hilliard & Burtt (33B)
34. S. sp. aff. S. speciosus
35. S. speciosus Willdenow
39. S. poseidonis Hilliard & Burtt (Discoid plants - 39B)
48. S. natalicola Hilliard
50. S. hieracioides DC.
51. S. consanguineus DC.
63. S. paludaffinis Hilliard

TABLE 5 continued

64. S. affinis DC.
 65. S. lydenburgensis Hutchinson & Burtt Davy
 67. S. anomalochrous Hilliard
 73. S. praeteritus Killick
 77. S. discodregeanus Hilliard & Burtt
 81. S. caudatus DC.
 88. S. inornatus DC.
 89. S. oxyriifolius DC.
 90. S. rhomboideus Harvey
 200. S. grandiflorus Berg.
 201. S. cakilefolius DC.
 202. S. arenarius Thunb.
 203. S. multibracteatus Harv.
 204. S. elegans L.
 210. S. vulgaris L.
 212. S. viscosus L.
 213. S. gallicus Chaix
 215. S. vernalis Waldst. & Kit.
 217. S. desfontainei Druce
 219. S. erectitoides Bak.
 220. S. lautus Willd.

GROUP II (character states: 11, 01, 06, 02, 01, 02)

15. S. achilleifolius DC.
 107. S. brachypodus DC.
 109. S. mikanioides (Otto ex) Harvey

GROUP III (character states: 11, 01, 06, 02, 02, 02)

97. S. bupleuroides DC.
 98. S. urophyllus Conrath

TABLE 5 continued

99. S. scitus Hutchinson & Burtt Davy
 102. S. latifolius DC.
 103. S. retrorsus DC.

GROUP IV (character states: 09, 01, 06, 02, 04, 02)

25. S. sandersonii Harvey
 28. S. umgeniensis Thellung
 85. S. heliopsis Hilliard & Burtt

GROUP V (character states: 09, 01, 06, 02, 05, 02)

31. S. cathcartensis O. Hoffmann
 33. S. polyodon DC. var. polyodon (33A)
 42. S. subrubriflorus O. Hoffmann
 76. S. dregeanus DC.
 104. S. othonniflorus DC.

GROUP VI (character states: 09, 01, 06, 02, 02, 02)

9. S. serratuloides DC.
 14. S. panduriformis Hilliard
 37. S. barbatus DC.
 39. S. sp. aff. S. poseideonis
 53. S. chrysocoma Meerburgh
 74. S. coronatus (Thunberg) Harvey
 82. S. mauricei Hilliard & Burtt
 101. S. glaberrimus DC.
 214. S. californicus DC.

TABLE 5 continued

GROUP VII (character states: 09, 01, 06, 02, 01, 01)

- 2. S. skirrhodon DC.
- 23. S. gerrardii Harvey
- 24. S. erubescens Aiton
 - var. crepidifolius DC. (24B)
 - var. incisus DC. (24C)
 - var. dichotomus DC. (24D)
- 36. S. macrocephalus DC.
- 38. S. poseideonis Hilliard & Burt (Radiate plants - 38A)
- 40. S. arabidifolius D. Hoffmann
- 56. S. hypochoerideus DC.
- 57. S. mooreanus Hutchinson

GROUP VIII (character states: 09, 01, 06, 02, 02, 01)

- 41. S. ryncholaenus DC.
- 43. S. hastatus L.
- 46. S. hirsutilobus Hilliard

GROUP IX (character states: 09, 01, 06, 03, 02, 01)

- 47. S. ingeliensis Hilliard
- 75. S. macrospermus DC.

GROUP X (character states: 09, 01, 06, 03, 02, 02)

- 26. S. glanduloso-lanosus Thellung
- 83. S. saniensis Hilliard & Burt
- 86. S. albanensis DC. var. doroniciflorus (DC.) Harvey

TABLE 5 continued

GROUP XI (character states: 09, 01, 06, 03, 01, 02)

55. S. asperulus DC.
72. S. brevidentatus M.D. Henderson

UNGROUPED SPECIES OF Senecio s. str.

6. S. pterophorus DC. (character states: 09, 01, 06, 01, 06, 02)
10. S. microglossus DC. (character states: 09, 01, 06, 02, 03, 02)
18. S. haygarthii Hilliard (character states: 13, 01, 06, 02, 01, 04)
108. S. pleistocephalus Spencer Moore (character states: 11, 01, 06, 02,
01, 01)
110. S. deltoideus Lessing (character states: 14, 01, 06, 02, 01, 02)
216. S. sylvaticus L. (character states: 09, 01, 06, 02, 08, 02)

PERIPHERAL SENECIOS

16. S. tanacetopsis Hilliard (character states: 17, 03, 06, 02, 01,
02)
17. S. seminiveus Wood & Evans (character states: 17, 03, 06, 02, 01,
02)
20. S. medley-woodii Hutchinson (character states: 14, 01, 06, 03, 07,
02)
111. S. tamoides DC. (character states: 11, 03, 06, 05, 08, 02)
116. S. helminthioides (Schultz Bipontinus) Hilliard (character states:
11, 03, 06, 04, 02, 02)
117. S. barbertonicus Klatt (character states: 11, 03, 06, 05, 02, 02)
118. S. breviflorus Hilliard (character states: 10, 03, 06, 03, 02, 02)
119. S. viminalis Bremekamp (character states: 15, 03, 06, 04, 08, 02)
120. S. radicans (L.f.) Schultz Bipontinus (character states: 09, 03,
06, 04, 02, 02)

TABLE 5 continued

122. S. fulgens (J.D. Hooker) Nicholson (character states: 16, 03, 06,
04, 08, 01)

SPECIES EXCLUDED FROM SENECIO

121. S. cissampelinus (DC.) Schultz Bipontinus (character states: 11,
03, 10, 02, 01, 02)
124. S. transvaalensis Bolus (character states: 19, 04, 06, 02, 03,
05)
223. S. syringifolius D.Hoffm. (character states: 14, 03, 06, 03, 02,
02)
224. S. hockii De Wild. & Muschl. (character states: 19, 03, 06, 02, 01,
02)

TABLE 6

A summary of the affinities between members of Senecio s. str. sensu Vincent, and the peripheral senecios (Table 5), based on the characters of generic importance (Table 4). The groups referred to are according to Table 5. The designation of 'sensu stricto' and 'peripheral' status to these taxa is according to Table 5.

<u>Senecio</u> s. str.	Peripheral senecios
Groups/species : Character states	Species : Character states
Group II : 11, 01, 06, 02, 01, 02	<u>S. tanacetopsis</u> : 17, 03, 06, 02, 01, 02 <u>S. seminiveus</u> : 17, 03, 06, 02, 01, 02
Group III : 11, 01, 06, 02, 02, 02	
<u>S. haygarthii</u> : 13, 01, 06, 02, 01, 04 <u>S. deltoideus</u> : 14, 01, 06, 02, 01, 02	
Group VII : 09, 01, 06, 02, 01, 01	<u>S. medley-woodii</u> : 14, 01, 06, 03, 07, 02 <u>S. tamoides</u> : 11, 03, 06, 05, 08, 02 <u>S. viminalis</u> : 15, 03, 06, 04, 08, 02 <u>S. fulgens</u> : 16, 03, 06, 04, 08, 01
Group VIII : 09, 01, 06, 02, 02, 01	
Group IX : 09, 01, 06, 03, 02, 01 <u>S. pleistocephalus</u> : 11, 01, 06, 02, 01, 01	
Group X : 09, 01, 06, 03, 02, 02	<u>S. helminthioides</u> : 11, 03, 06, 04, 02, 02 <u>S. barbertonicus</u> : 11, 03, 06, 05, 02, 02 <u>S. brevilorus</u> : 10, 03, 06, 03, 02, 02 <u>S. radicans</u> : 09, 03, 06, 04, 02, 02
Group XI : 09, 01, 06, 03, 02, 02	

TABLE 7

A table of the eigenvalues of the six factors extracted from the principal components analysis (PCA) of the six characters of generic importance (CHAR 095, CHAR 103, CHAR 107, CHAR 108, CHAR 110 & CHAR 117) (see Table 4) of all the taxa studied (Table 1).

FACTOR NUMBER	EIGENVALUE
FACT 001	2,711
FACT 002	1,167
FACT 003	0,952
FACT 004	0,489
FACT 005	0,134
FACT 006	0,547

TABLE 8

A table of the eigenvalues, the percent of the trace and the accumulated percent of the three factors extracted from the principal components analysis (PCA) of the six characters of generic importance (CHAR 095, CHAR 103, CHAR 107, CHAR 108, CHAR 110 & CHAR 117) (see Table 4), of all the taxa studied (Table 1).

Number of iterations: 1

Trace = 6

Number of factors extracted: 3

FACTOR NUMBER	EIGENVALUE	PERCENT OF TRACE	ACCUMULATED PERCENT
FACT 001	2,711138	45,19	45,19
FACT 002	1,16727	19,45	64,64
FACT 003	0,95177	15,86	80,51 (80,5%)

TABLE 2

A table of the factors (eigenvectors) after principal components analysis (PCA) of each of the six characters of generic importance (CHAR 095, CHAR 103, CHAR 107, CHAR 108, CHAR 110 & CHAR 117) (see Table 4); of all the taxa studied (Table 1).

CHARACTER NUMBER	FACTORS (EIGENVECTORS)		
	FACTOR 001	FACTOR 002	FACTOR 003
CHAR 095	0,863	-0,120	0,059
CHAR 103	0,909	-0,158	0,017
CHAR 107	0,426	-0,582	-0,613
CHAR 108	0,643	0,533	0,241
CHAR 110	0,738	0,234	0,025
CHAR 117	0,031	-0,671	0,717

TABLE 10

This is a list of the thirty-seven characters which have been selected as being taxonomically significant with respect to elucidating the interrelationships amongst the senecios investigated in this study. Character 107 is invariant amongst the Natal members of Senecio (Table 11), while characters 103 and 107 are invariant amongst all the members of Senecio s. str. sensu Vincent (Table 12).

LEAF SHAPE:	RADICAL	CHAR 016
	CAULINE	CHAR 017
LEAF VENATION:	RADICAL	CHAR 024
	CAULINE	CHAR 025
LEAF TRICHOMES:	BASE	CHAR 034
	APEX	CHAR 035
	APENDAGES	CHAR 036
INVOLUCRE SHAPE		CHAR 049
INVOLUCRAL BRACTS:	NUMBER	CHAR 050
	LENGTH	CHAR 051
	SHAPE	CHAR 052
	TRICHOMES	CHAR 054
CALYCVLUS BRACTS:	TRICHOMES	CHAR 063
DISC COROLLA:	COROLLA LENGTH	CHAR 081
	COROLLA SHAPE	CHAR 082
	RESINOUS	CHAR 085
	LOBE APEX	CHAR 086
GYNOECIUM (DISC):	STYLE-ARM LENGTH	CHAR 094
	STYLE-ARM APICES	CHAR 095
	STYLE BASE	CHAR 097
	NECTARY	CHAR 098
ANDROECIUM (DISC):	ANTHER APEX	CHAR 103
	ANTHER BASE APPEARANCE	CHAR 104
	ANTHER LENGTH	CHAR 105
ENDOTHECIAL TISSUE:	CELL WALL CONFIGURATION	CHAR 107
FILAMENT COLLARS:	LENGTH	CHAR 108
	BASAL WIDTH	CHAR 109
	SHAPE	CHAR 110
CYPSELA (DISC):	LENGTH	CHAR 116
	SHAPE	CHAR 117
	RIBBING	CHAR 118
	PERICARP CELLS - SHAPE	CHAR 120
PAPPUS:	UNIFORM/DIMORPHIC	CHAR 121
PAPPUS SETAE (DISC):	LENGTH	CHAR 126
	APPEARANCE	CHAR 127
	DISTAL CELL NUMBER	CHAR 128
	APEX	CHAR 129

TABLE 11

This is list of the Natal members of Senecio sensu stricto and the peripheral senecios, after the application of my generic concept. The numbers in the left hand margin are for identification purposes only (see Table 1).

Senecio sensu stricto

1. S. madagascariensis Poirét
2. S. skirrhodon DC.
3. S. inaequidens DC.
4. S. harveianus MacOwan
5. S. polyanthemoides Schultz Bipontinus
6. S. pterophorus DC.
7. S. juniperinus L.f.
9. S. serratuloides DC.
10. S. microglossus DC.
14. S. panduriformis Hilliard
15. S. achilleifolius DC.
18. S. haygarthii Hilliard
22. S. purpureus L.
23. S. gerrardii Harvey
24. S. erubescens Aiton
 - var. erubescens (24A)
 - var. crepidifolius DC. (24B)
 - var. incisus DC. (24C)
 - var. dichotomus DC. (24D)
25. S. sandersonii Harvey
26. S. glanduloso-lanosus Thellung
27. S. variabilis Schultz Bipontinus
28. S. umgeniensis Thellung
29. S. glanduloso-pilosus Volkens & Muschler
30. S. subconiaceus Schlechter
31. S. cathcartensis O. Hoffmann

TABLE 11 continued

32. S. ngoyanus Hilliard
 33. S. polyodon DC.
 var. polyodon (33A)
 var. subqlaber (O.Kuntze) Hilliard & Burtt (33B)
 34. S. sp. aff. S. speciosus
 35. S. speciosus Willdenow
 36. S. macrocephalus DC.
 37. S. barbatus DC.
 38. S. poseideonis Hilliard & Burtt
 radiate forms (38A)
 discoid forms (38B)
 39. S. sp. aff. S. poseideonis
 40. S. arabidifolius O. Hoffmann
 41. S. ryncholaenus DC.
 42. S. subrubriflorus O. Hoffmann
 43. S. hastatus L.
 46. S. hirsutilobus Hilliard
 47. S. ingeliensis Hilliard
 48. S. natalicola Hilliard
 50. S. hieracioides DC.
 51. S. consanguineus DC.
 53. S. chrysocoma Meerburgh
 55. S. asperulus DC.
 56. S. hypochoerideus DC.
 57. S. mooreanus Hutchinson
 63. S. paludaffinis Hilliard
 64. S. affinis DC.
 65. S. lydenburgensis Hutchinson & Burtt Davy
 67. S. anomalochrous Hilliard
 72. S. brevidentatus M.D. Henderson
 73. S. praeteritus Killick
 74. S. coronatus (Thunberg) Harvey
 75. S. macrospermus DC.
 76. S. dregeanus DC.
 77. S. discodregeanus Hilliard & Burtt
 81. S. caudatus DC.

TABLE 11 continued

82. S. mauricei Hilliard & Burt
 83. S. saniensis Hilliard & Burt
 85. S. heliopsis Hilliard & Burt
 86. S. albanensis DC. var. doroniciflorus (DC.) Harvey
 88. S. inornatus DC.
 89. S. oxyriifolius DC.
 90. S. rhomboideus Harvey
 97. S. bupleuroides DC.
 98. S. urophyllus Conrath
 99. S. scitus Hutchinson & Burt Davy
 101. S. glaberrimus DC.
 102. S. latifolius DC.
 103. S. retrorsus DC.
 104. S. othonniflorus DC.
 107. S. brachypodus DC.
 108. S. pleistocephalus Spencer Moore
 109. S. mikanioides (Otto ex) Harvey
 110. S. deltoideus Lessing

PERIPHERAL SENECIOS

20. S. medley-woodii Hutchinson
 16. S. tanacetopsis Hilliard
 17. S. seminiveus Wood & Evans
 111. S. tamoides DC.
 116. S. helminthioides (Schultz Bipontinus) Hilliard
 117. S. barbertonicus Klatt
 118. S. breviflorus Hilliard
 119. S. viminalis Bremekamp
 120. S. radicans (L.f.) Schultz Bipontinus
 122. S. fulgens (J.D. Hooker) Nicholson

TABLE 12

This is list of the Natal, the Cape and the non-southern African members of Senecio s. str. sensu Vincent. The numbers in the left hand margin are for identification purposes only (see Table 1).

NATAL

1. S. madagascariensis Poirat
2. S. skirrhodon DC.
3. S. inaequidens DC.
4. S. harveianus MacDwan
5. S. polyanthemoides Schultz Bipontinus
6. S. pterophorus DC.
7. S. juniperinus L.f.
9. S. serratuloides DC.
10. S. microglossus DC.
14. S. panduriformis Hilliard
15. S. achilleifolius DC.
18. S. hayqarthii Hilliard
22. S. purpureus L.
23. S. gerrardii Harvey
24. S. erubescens Aiton
 - var. erubescens (24A)
 - var. crepidifolius DC. (24B)
 - var. incisus DC. (24C)
 - var. dichotomus DC. (24D)
25. S. sandersonii Harvey
26. S. glanduloso-lanosus Thellung
27. S. variabilis Schultz Bipontinus
28. S. umgeniensis Thellung
29. S. glanduloso-pilosus Volkens & Muschler
30. S. subcoriaceus Schlechter
31. S. cathcartensis O. Hoffmann
32. S. ngoyanus Hilliard

TABLE 12 continued

33. S. polyodon DC.
 var. polyodon (33A)
 var. subglaber (O.Kuntze) Hilliard & Burtt (33B)
34. S. sp. aff. S. speciosus
35. S. speciosus Willdenow
36. S. macrocephalus DC.
37. S. barbatus DC.
38. S. poseideonis Hilliard & Burtt
 radiate form (38A)
 discoid form (38B)
39. S. sp. aff. S. poseideonis
40. S. arabidifolius O. Hoffmann
41. S. rhyncholaenus DC.
42. S. subrubriflorus O. Hoffmann
43. S. hastatus L.
46. S. hirsutilobus Hilliard
47. S. ingeliensis Hilliard
48. S. natalicola Hilliard
50. S. hieracioides DC.
51. S. consanguineus DC.
53. S. chrysocoma Meerburgh
55. S. asperulus DC.
56. S. hypochoerideus DC.
57. S. mooreanus Hutchinson
63. S. paludaffinis Hilliard
64. S. affinis DC.
65. S. lydenburgensis Hutchinson & Burtt Davy
67. S. anomalochrous Hilliard
72. S. brevidentatus M.D. Henderson
73. S. praeteritus Killick
74. S. coronatus (Thunberg) Harvey
75. S. macrospermus DC.
76. S. dregeanus DC.
77. S. discodregeanus Hilliard & Burtt
81. S. caudatus DC.
82. S. mauricei Hilliard & Burtt
83. S. saniensis Hilliard & Burtt

TABLE 12 continued

85. S. heliopsis Hilliard & Burt
 86. S. albanensis DC. var. doroniciflorus (DC.) Harvey
 88. S. inornatus DC.
 89. S. oxyriifolius DC.
 90. S. rhomboideus Harvey
 97. S. bupleuroides DC.
 98. S. urophyllus Conrath
 99. S. scitus Hutchinson & Burt Davy
 101. S. glaberrimus DC.
 102. S. latifolius DC.
 103. S. retrorsus DC.
 104. S. othonniflorus DC.
 107. S. brachypodus DC.
 108. S. pleistocephalus Spencer Moore
 109. S. mikanioides (Otto ex) Harvey
 110. S. deltoideus Lessing

CAPE HETEROCHROMOUS NON-YELLOW (PURPLE) SENECIOS

200. S. grandiflorus Berg.
 201. S. cakilefolius DC.
 202. S. arenarius Thunb.
 203. S. multibracteatus Harv.
 204. S. elegans L.

NON-SOUTHERN AFRICAN SENECIOS

210. S. vulgaris L. (U.S.A., U.K., Europe & E. Asia)
 212. S. viscosus L. (U.S.A. & U.K.)
 213. S. gallicus Chaix (Spain & Portugal)
 214. S. californicus DC. (U.S.A.)
 215. S. vernalis Waldst. & Kit. (Europe)
 216. S. sylvaticus L. (U.S.A. & U.K.)
 217. S. desfontainei Druce (Middle East & E. Asia)
 219. S. erectitoides Bak. (Madagascar)
 220. S. lautus Willd. (Australia)

TABLE 13

This is list of the Natal members of Senecio s. str. sensu Vincent, and the remaining peripheral senecios together with a list of the peripheral senecios which are excluded. This list is subsequent to the numerical analysis of these taxa with respect to the thirty-seven characters of taxonomic significance (Table 10). The species already excluded after the application of my generic concept (Table 5) are not included in this list. The numbers in the left hand margin are for identification purposes only (see Table 1).

Senecio sensu stricto

1. S. madagascariensis Poinet
2. S. skirrhodon DC.
3. S. inaequidens DC.
4. S. harveianus MacOwan
5. S. polyanthemoides Schultz Bipontinus
6. S. pterophorus DC.
7. S. juniperinus L.f.
9. S. serratuloides DC.
10. S. microglossus DC.
14. S. panduriformis Hilliard
15. S. achilleifolius DC.
18. S. haygarthii Hilliard
22. S. purpureus L.
23. S. gerrardii Harvey
24. S. erubescens Aiton
 - var. erubescens (24A)
 - var. crepidifolius DC. (24B)
 - var. incisus DC. (24C)
 - var. dichotomus DC. (24D)
25. S. sandersonii Harvey
26. S. glanduloso-lanqus Thellung
27. S. variabilis Schultz Bipontinus
28. S. umgeniensis Thellung

TABLE 13 continued

29. S. glanduloso-pilosus Volkens & Muschler
30. S. subcoriaceus Schlechter
31. S. cathcartensis O. Hoffmann
32. S. ngoyanus Hilliard
33. S. polyodon DC.
 var. polyodon (33A)
 var. subglaber (O.Kuntze) Hilliard & Burtt (33B)
34. S. sp. aff. S. speciosus
35. S. speciosus Willdenow
36. S. macrocephalus DC.
37. S. barbatus DC.
38. S. poseideonis Hilliard & Burtt
 radiate form (38A)
 discoid form (38B)
39. S. sp. aff. S. poseideonis
40. S. arabidifolius O. Hoffmann
41. S. rhyncholaenus DC.
42. S. subrubriflorus O. Hoffmann
43. S. hastatus L.
46. S. hirsutilobus Hilliard
47. S. ingeliensis Hilliard
48. S. natalicola Hilliard
50. S. hieracioides DC.
51. S. consanguineus DC.
53. S. chrysocoma Meerburgh
55. S. asperulus DC.
56. S. hypochoerideus DC.
57. S. mooreanus Hutchinson
63. S. paludaffinis Hilliard
64. S. affinis DC.
65. S. lydenburgensis Hutchinson & Burtt Davy
67. S. anomalochrous Hilliard
72. S. brevidentatus M.D. Henderson
73. S. praeteritus Killick
74. S. coronatus (Thunberg) Harvey
75. S. macrospermus DC.
76. S. dregeanus DC.

TABLE 13 continued

77. S. discodregeanus Hilliard & Burt
 81. S. caudatus DC.
 82. S. mauricei Hilliard & Burt
 83. S. saniensis Hilliard & Burt
 85. S. heliopsis Hilliard & Burt
 86. S. albanensis DC. var. doroniciflorus (DC.) Harvey
 88. S. inornatus DC.
 89. S. oxyriifolius DC.
 90. S. rhomboideus Harvey
 97. S. bupleuroides DC.
 98. S. urophyllus Conrath
 99. S. scitus Hutchinson & Burt Davy
 101. S. glaberrimus DC.
 102. S. latifolius DC.
 103. S. retrorsus DC.
 104. S. othonniflorus DC.
 107. S. brachypodus DC.
 108. S. pleistocephalus Spencer Moore
 109. S. mikanioides (Otto ex) Harvey
 110. S. deltoideus Lessing

PERIPHERAL SENECIOS

16. S. tanacetopsis Hilliard
 17. S. seminiveus Wood & Evans
 118. S. brevilorus Hilliard

SPECIES EXCLUDED FROM SENECIO

20. S. medley-woodii Hutchinson
 111. S. tamoides DC.
 116. S. helminthioides (Schultz Bipontinus) Hilliard
 117. S. barbentonicus Klatt
 119. S. viminalis Bremekamp
 120. S. radicans (L.f.) Schultz Bipontinus
 122. S. fulgens (J.D. Hooker) Nicholson

TABLE 14

A table of the eigenvalues of the thirty-six factors extracted from the principal components analysis (PCA) of the thirty-seven characters of taxonomic significance (Table 10, excluding CHAR 107, which is invariant in this analysis) of the Natal senecios studied (Table 11).

FACTOR NUMBER	EIGENVALUE
FACT 001	9,714
FACT 002	5,104
FACT 003	2,260
FACT 004	1,972
FACT 005	1,741
FACT 006	1,354
FACT 007	1,268
FACT 008	1,160
FACT 009	1,129
FACT 010	1,031
FACT 011	0,975
FACT 012	0,898
FACT 013	0,824
FACT 014	0,763
FACT 015	0,638
FACT 016	0,605
FACT 017	0,568
FACT 018	0,498
FACT 019	0,456
FACT 020	0,429
FACT 021	0,006
FACT 022	0,005
FACT 023	0,017
FACT 024	0,365
FACT 025	0,349
FACT 026	0,300
FACT 027	0,311
FACT 028	0,065
FACT 029	0,073
FACT 030	0,104
FACT 031	0,120
FACT 032	0,219
FACT 033	0,205
FACT 034	0,178
FACT 035	0,151
FACT 036	0,145

TABLE 15

A table of the eigenvalues, the percent of the trace and the accumulated percent of the three factors extracted from the principal components analysis (PCA) of the thirty-seven characters of taxonomic significance (Table 10, excluding CHAR 107, which is invariant in this analysis) of the Natal senecios (Table 11).

 Number of iterations: 1

Trace = 36

Number of factors extracted: 3

FACTOR NUMBER	EIGENVALUE	PERCENT OF TRACE	ACCUMULATED PERCENT
FACT 001	9,71389	26,98	26,98
FACT 002	5,10431	14,18	41,16
FACT 003	2,25982	6,28	47,44 (47,4%)

TABLE 16

A table of the factors (eigenvectors) after principal components analysis (PCA) of each of the thirty-seven characters of taxonomic significance (Table 10, excluding CHAR 107, which is invariant in this analysis) of the *Natal senecios* studied (Table 11).

CHARACTER NUMBER	FACTORS (EIGENVECTORS)		
	FACTOR 001	FACTOR 002	FACTOR 003
CHAR 016	0,684	-0,326	0,087
CHAR 017	0,782	0,051	0,291
CHAR 024	0,664	-0,361	0,046
CHAR 025	0,591	-0,213	0,031
CHAR 034	0,736	-0,076	-0,563
CHAR 035	0,783	-0,043	-0,518
CHAR 036	0,707	-0,056	-0,607
CHAR 049	0,511	0,167	-0,129
CHAR 050	-0,675	0,264	0,095
CHAR 051	-0,012	0,810	0,018
CHAR 052	0,597	0,059	-0,026
CHAR 054	0,612	-0,216	-0,075
CHAR 063	0,742	-0,268	-0,246
CHAR 081	0,226	0,844	0,023
CHAR 082	0,704	0,034	0,043
CHAR 085	0,243	-0,037	0,222
CHAR 086	0,579	0,124	0,272
CHAR 094	0,515	0,626	0,082
CHAR 095	0,654	0,035	0,364
CHAR 097	-0,038	-0,125	0,217
CHAR 098	0,365	-0,113	0,234
CHAR 103	0,633	0,358	0,270
CHAR 104	0,594	-0,526	0,051
CHAR 105	0,311	0,734	-0,081
CHAR 108	0,523	0,593	0,176
CHAR 109	0,117	0,329	-0,305
CHAR 110	0,374	0,399	0,048
CHAR 116	0,344	0,532	-0,158
CHAR 117	0,199	-0,234	0,287
CHAR 118	-0,156	0,164	0,070
CHAR 120	-0,658	0,200	-0,037
CHAR 121	-0,565	0,267	-0,353
CHAR 126	0,060	0,825	-0,027
CHAR 127	-0,416	0,105	-0,330
CHAR 128	-0,018	0,204	0,019
CHAR 129	0,185	0,100	0,440

TABLE 17

A table of the eigenvalues of the thirty-five factors extracted from the principal components analysis (PCA) of the thirty-seven characters of taxonomic significance (Table 10, excluding CHAR 103 & CHAR 107, which are invariant in this analysis) of all the members of Senecio s. str. sensu Vincent, studied (Table 12).

FACTOR NUMBER	EIGENVALUE
FACT 001	8,061
FACT 002	4,112
FACT 003	2,228
FACT 004	2,180
FACT 005	1,723
FACT 006	1,589
FACT 007	1,413
FACT 008	1,292
FACT 009	1,367
FACT 010	1,087
FACT 011	0,949
FACT 012	0,938
FACT 013	0,857
FACT 014	0,763
FACT 015	0,698
FACT 016	0,659
FACT 017	0,593
FACT 018	0,007
FACT 019	0,013
FACT 020	0,035
FACT 021	0,524
FACT 022	0,093
FACT 023	0,107
FACT 024	0,132
FACT 025	0,140
FACT 026	0,195
FACT 027	0,481
FACT 028	0,467
FACT 029	0,424
FACT 030	0,229
FACT 031	0,258
FACT 032	0,360
FACT 033	0,343
FACT 034	0,312
FACT 035	0,329

TABLE 18

A table of the eigenvalues, the percent of the trace and the accumulated percent of the three factors extracted from the principal components analysis (PCA) of the thirty-seven characters of taxonomic significance (Table 10, excluding CHAR 103 & CHAR 107, which are invariant in this analysis) of all the members of Senecio s. str. sensu Vincent, studied (Table 12).

 Number of iterations: 1

Trace = 35

Number of factors extracted: 3

FACTOR NUMBER	EIGENVALUE	PERCENT OF TRACE	ACCUMULATED PERCENT
FACT 001	8,06127	23,03	23,03
FACT 002	4,11195	11,75	34,78
FACT 003	2,22826	6,37	41,15 (41,2%)

TABLE 19

A table of the factors (eigenvectors) after principal components analysis (PCA) of each of the thirty-seven characters of taxonomic significance (Table 10, excluding CHAR 103 & CHAR 107, which are invariant in this analysis) of all the members of Senecio s. str. sensu Vincent, studied (Table 12).

CHARACTER NUMBER	FACTORS (EIGENVECTORS)		
	FACTOR 001	FACTOR 002	FACTOR 003
CHAR 016	0,689	-0,301	0,198
CHAR 017	0,508	-0,113	0,452
CHAR 024	0,688	-0,355	0,089
CHAR 025	0,522	0,428	-0,009
CHAR 034	0,709	0,302	-0,439
CHAR 035	0,735	0,321	-0,357
CHAR 036	0,678	0,342	-0,486
CHAR 049	0,268	0,301	-0,083
CHAR 050	-0,690	-0,037	0,201
CHAR 051	-0,542	0,451	0,178
CHAR 052	0,521	0,161	0,103
CHAR 054	0,615	-0,104	0,145
CHAR 063	0,733	0,126	-0,017
CHAR 081	-0,425	0,631	0,184
CHAR 082	0,529	0,362	0,184
CHAR 085	0,142	0,237	0,275
CHAR 086	0,310	0,331	0,423
CHAR 094	-0,158	0,427	0,005
CHAR 095	0,638	0,109	0,176
CHAR 097	0,027	-0,187	0,395
CHAR 098	0,285	0,004	0,072
CHAR 104	0,777	0,209	0,029
CHAR 105	-0,215	0,830	0,009
CHAR 108	-0,171	0,435	0,363
CHAR 109	-0,125	0,546	-0,226
CHAR 110	0,010	0,012	-0,067
CHAR 116	-0,001	0,629	-0,014
CHAR 117	0,309	-0,133	0,255
CHAR 118	-0,150	0,249	0,086
CHAR 120	-0,603	-0,109	0,038
CHAR 121	-0,541	-0,127	-0,264
CHAR 126	-0,564	0,512	0,120
CHAR 127	-0,375	0,053	-0,350
CHAR 128	-0,174	0,061	-0,328
CHAR 129	-0,034	0,213	0,467

TABLE 20

The following characters of the pollen, of all the taxa investigated (Table 1), were studied using the scanning electron microscopy (SEM).

- (i). Shape of the pollen grains.
- (ii). Spinule frequency.
- (iii). Length/width (basal) ratio of the spinules.
- (iv). Prominence of the colpi.
- (v). Perforations in the exine.

TABLE 21

The occurrence of terpenes and pyrrolizidine alkaloids amongst all the members of Senecio s. str. sensu Vincent, together with the peripheral senecios and the species which are recommended for exclusion from Senecio. The numbers in the left hand margin are for identification purposes only (see Table 1). The numbers in the square brackets refer to the references, which are cited at the end of the table .

Key to compounds:

- A - Acetylenes
 AFE - Aromatic furanoeremophilane
 AP - Acylpyrrole
 APD - Acylpyrrole diester
 B - Bisabolene derivative
 C - Cacalol derivative
 CE - Cholinester
 DT - Diterpine
 E - Eremophilane
 EU - Eudesmane
 EUP - Euparine derivative
 EUR - Euryopsin derivative
 FE - Furanoeremophilane
 GE - Germacrene derivative
 HOE - Highly oxygenated eremophilane
 HOG - Highly oxygenated germacrene
 HOS - Highly oxygenated sesquiterpene
 PA - Pyrrolizidine alkaloid
 TT - Triterpene
 TY - Thymol derivative

Senecio sensu stricto
 (Natal senecios)

- | | |
|--|---|
| 1. <u>S. madagascariensis</u> Poinet ----- | FE [4] |
| 2. <u>S. skinrhodon</u> DC. | |
| 3. <u>S. inaequidens</u> DC. ----- | PA
[5,7,8,13,16,
24,26,27,5],
C
[4,6,7,8,13,1
6,24,26], AFE
[1], AP [1] |
| 4. <u>S. harveianus</u> MacOwan ----- | C [11], FE
[11], AFE
[1,6], AP
[1] |

TABLE 21 continued

5. <u>S. polyanthemoides</u> Schultz Bipontinus -----	PA [11], FE [1,6,11], AP [1]
6. <u>S. pterophorus</u> DC. -----	PA [1,5,10,11,12], FE [1,6,10,11,12], AP [1], EUR [6]
7. <u>S. juniperinus</u> L.f.	
9. <u>S. serratuloides</u> DC. -----	A [1]
10. <u>S. microglossus</u> DC. -----	HDS [2]
14. <u>S. panduriformis</u> Hilliard -----	FE [6,12]
15. <u>S. achilleifolius</u> DC.	
18. <u>S. haygarthii</u> Hilliard -----	no FE [6]
22. <u>S. purpureus</u> L. -----	HOE [1,9], no FE [6]
23. <u>S. gerrardii</u> Harvey -----	HOE [1,2,17], no FE [6]
24. <u>S. erubescens</u> Aiton	
var. <u>erubescens</u> (24A) -----	HOE [1,2], no PA's [2], no FE [6]
var. <u>crepidifolius</u> DC. (24B) -----	HOE [1], no PA's [2]
var. <u>incisus</u> DC. (24C)	
var. <u>dichotomus</u> DC. (24D)	
25. <u>S. sandersonii</u> Harvey -----	E [23], AFE [1], B [1], DT [1], C [6]
26. <u>S. glanduloso-lanosus</u> Thellung	
27. <u>S. variabilis</u> Schultz Bipontinus -----	HOE [1], E [3] PA3], no FE [6]
28. <u>S. umceniensis</u> Thellung -----	E [3], PA [3]
29. <u>S. glanduloso-pilosus</u> Volkens & Muschler -----	E [30]
30. <u>S. subcoriaceus</u> Schlechter	
31. <u>S. cathcartensis</u> O. Hoffmann -----	E [17]
32. <u>S. ngoyanus</u> Hilliard	
33. <u>S. polyodon</u> DC.	
var. <u>polyodon</u> (33A) -----	HOE [1], E [21], no FE [6]
var. <u>subglaber</u> (O.Kuntze) Hilliard & Burt (33B)	
34. <u>S. sp. aff. S. speciosus</u>	
35. <u>S. speciosus</u> Willdenow -----	HOE [1], E [21,4], no FE [6]

TABLE 21 continued

36. <u>S. macrocephalus</u> DC. -----	FE [4], no PA's [2,4]
37. <u>S. barbatus</u> DC.	
38. <u>S. poseideonis</u> Hilliard & Burtt radiate form (38A) discoid form (38B)	
39. <u>S. sp. aff. S. poseideonis</u>	
40. <u>S. arabidifolius</u> O. Hoffmann	
41. <u>S. rhyncholaenus</u> DC. -----	HOE [1], E [21], no FE [6]
42. <u>S. subrubriflorus</u> O. Hoffmann	
43. <u>S. hastatus</u> L. -----	no FE [6]
46. <u>S. hirsutilobus</u> Hilliard -----	FE [1,6]
47. <u>S. ingeliensis</u> Hilliard	
48. <u>S. natalicola</u> Hilliard	
50. <u>S. hieracioides</u> DC. -----	FE [2]
51. <u>S. consanguineus</u> DC.	
53. <u>S. chrysocoma</u> Meerburgh -----	FE [1,6]
55. <u>S. asperulus</u> DC.	
56. <u>S. hypochoerideus</u> DC. -----	E [15], FE [1,6], DT [1], Oxepin [1]
57. <u>S. mooreanus</u> Hutchinson	
63. <u>S. paludaffinis</u> Hilliard -----	C [1,6,22]
64. <u>S. affinis</u> DC. -----	C [1,6], FE [6]
65. <u>S. lydenburgensis</u> Hutchinson & Burtt Davy -----	C [28,4]
67. <u>S. anomalochrous</u> Hilliard	
72. <u>S. brevidentatus</u> M.D. Henderson -----	C [6]
73. <u>S. praeteritus</u> Killick	
74. <u>S. coronatus</u> (Thunberg) Harvey -----	C [29], FE [4], no PA's [2,4]
75. <u>S. macrospermus</u> DC. -----	C [2], AFE [6]
76. <u>S. dregeanus</u> DC.	
77. <u>S. discodregeanus</u> Hilliard & Burtt	
81. <u>S. caudatus</u> DC. -----	PA [3]
82. <u>S. mauricei</u> Hilliard & Burtt	
83. <u>S. saniensis</u> Hilliard & Burtt -----	AFE [1,6]
85. <u>S. heliopsis</u> Hilliard & Burtt -----	FE [4]
86. <u>S. albanensis</u> DC. var. <u>doroniciflorus</u> (DC.) Harvey -	C [1,6]
88. <u>S. inornatus</u> DC. -----	C [6,16]
89. <u>S. oxyriifolius</u> DC. -----	B [19], no FE [6]
90. <u>S. rhomboideus</u> Harvey -----	no FE [6]
97. <u>S. bupleuroides</u> DC. -----	PA [5], PA only [1] no FE [6]

TABLE 21 continued

98. <u>S. urophyllus</u> Conrath	
99. <u>S. scitus</u> Hutchinson & Burt Davy	
101. <u>S. glaberrimus</u> DC. -----	PA [5], PA only [1,9], no FE [6]
102. <u>S. latifolius</u> DC. -----	PA only [1,10,12,14], no FE [6]
103. <u>S. retrorsus</u> DC. -----	PA [9]
104. <u>S. othonniflorus</u> DC.	
107. <u>S. brachypodus</u> DC. -----	PA [1,5,9], HOG [1], no FE [6]
108. <u>S. pleistocephalus</u> Spencer Moore -----	EU [29]
109. <u>S. mikanioides</u> (Otto ex) Harvey -----	PA [5], PA special [922,1525,1,18,7,14], no FE [6]
110. <u>S. deltoideus</u> Lessing -----	A [1,18,12], CE [1]
(Cape heterochromous non-yellow senecios)	
200. <u>S. grandiflorus</u> Berg. -----	FE [1,6]
201. <u>S. cakilefolius</u> DC.	
202. <u>S. arenarius</u> Thunb.	
203. <u>S. multibracteatus</u> Harv.	
204. <u>S. elegans</u> L. -----	FE [1], TY [1], EUR [6]
(Non-southern African senecios)	
210. <u>S. vulgaris</u> L. (U.S.A., U.K., Europe & E. ASIA) ----	PA [1,5], CE [1], no FE [6]
212. <u>S. viscosus</u> L. (U.S.A. & U.K.) -----	PA [1,5], HOE [1], no FE [6]
213. <u>S. gallicus</u> Chaix (Spain & Portugal) -----	no FE [6]
214. <u>S. californicus</u> DC. (U.S.A.)	
215. <u>S. vernalis</u> Waldst. & Kit. (Europe) -----	PA [5], EUP [1]
216. <u>S. sylvaticus</u> L. (U.S.A. & U.K.) -----	PA [1,5], FE [1,6], HOE [1], EUR [6]
217. <u>S. desfontainei</u> Druce (Middle East & E. ASIA) -----	PA [1,5]
219. <u>S. erectitoides</u> Bak. (Madagascar)	
220. <u>S. lautus</u> Willd. (Australia) -----	PA [1,5], FE [1,6]

TABLE 21 continued

PERIPHERAL SENECIOS

- | | |
|---|-----------|
| 16. <u>S. tanacetopsis</u> Hilliard | |
| 17. <u>S. seminiveus</u> Wood & Evans ----- | no FE [6] |
| 118. <u>S. breviflorus</u> Hilliard ----- | A [20] |

SPECIES EXCLUDED FROM SENECIO

- | | |
|--|---|
| 20. <u>S. medley-woodii</u> Hutchinson ----- | FE [1,6,16] |
| 111. <u>S. tamoides</u> DC. ----- | PA [1,998],
no FE [6] |
| 116. <u>S. helminthioides</u> (Schultz Bipontinus) Hilliard ---- | TT [1], no FE
[6] |
| 117. <u>S. barbertonicus</u> Klatt ----- | PA [5], AP
[1], TT [1],
no FE [6] |
| 119. <u>S. viminalis</u> Bremekamp ----- | PA [5], TT
[1], no FE
[6] |
| 120. <u>S. radicans</u> (L.f.) Schultz Bipontinus ----- | TT [1], no FE
[6] |
| 121. <u>S. cissampelinus</u> (DC.) Sch. Bip. ----- | PA special
[5,12], APD
[1], HOE [1],
no FE [6] |
| 122. <u>S. fulgens</u> (J.D. Hooker) Nicholson ----- | HOS [25] |
| 124. <u>S. transvaalensis</u> Bolus | |
| 223. <u>S. syringifolius</u> O. Hoffm. ----- | GE [1], no FE
[6] |
| 224. <u>S. hockii</u> De Wild. & Muschl. | |

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APPENDIX A

The numbers in the left-hand margin correspond to the character-state codes.

The character-state codes for each taxon studied (Table 1), for all the characters investigated (Table 2), are provided in Appendix B.

The numerical sequence of the character-state codes, within each character, is incidental.

VEGETATIVE HABIT (CHAR 008)

- 01 Perennial herb.
 - 02 Leafy perennial herb.
 - 03 Annual.
 - 04 Probably biennial, (growing in colonies socially).
 - 05 Perennial herb with tufts of annual stems from a woody stock.
 - 06 Tufted perennial herb.
 - 07 Perennial herb, growing in colonies.
 - 08 Probably perennial.
 - 09 Bushy perennial
 - 10 Bushy Annual.
 - 11 A rounded, fairly compact, bushy annual.
 - 12 Virgate biennial herb.
 - 13 Perennial herb forming loosely tufted mats up to 600 mm across.
 - 14 (Perennial) Shrub.
 - 15 Scandent shrub (succulent).
 - 16 Perennial herb (succulent).
 - 17 Slender, voluble herbaceous twiner - more or less succulent.
 - 18 Slender herbaceous scrambler.
 - 19 Voluble herbaceous twiner.
 - 20 Voluble herbaceous twiner (succulent).
 - 21 Herbaceous/woody twiner.
 - 22 Dwarf shrub, (twiggy, compact).
 - 23 Diffuse succulent, perennial herb (forming mats).
 - 24 Succulent.
-

ROOTSTOCK (CHAR 009)

- 01 Some thick adventitious roots; the remainder slender.
- 02 Stout woody rootstock up to 10 mm in diameter.
- 03 Stout elongated woody rootstock, covered with leaf and stem bases.
- 04 Woody stock.
- 05 Stout woody stock c. 15 mm in diameter.
- 06 Stout branching rhizomatous stock (crowned with several leaf rosettes).
- 07 Perennial rootstock.
- 08 Irregular Knobby rootstock.

APPENDIX A continued

- 09 Woody tuber c. 10 mm in diameter.
 - 10 Stout wood stock, roots thinly fusiform.
 - 11 Stout woody stock.
 - 12 Often rooting from the often decumbent *flowering stem(s)*.
 - 13 Stout woody stock up to 7 mm in diameter.
 - 14 Rhizomatous.
 - 15 Rhizomatous, thick (up to 10 mm in diameter), branched, producing numerous congested leaf rosettes.
 - 16 Stout woody stock crowned with old fibrous leaf bases.
 - 17 Thick woody silky woolly, crowned with a few coarse fibrous leaf bases.
 - 18 Slender, crowned with thin fibrous leaf bases, roots narrowly fusiform .
 - 19 Silky woolly, old fibrous leaf bases often present as well, roots woolly .
 - 20 Thick *woody* stock giving rise to a large clump of leaf rosettes, leaf remains forming a fibrous crown on the stock.
 - 21 Rhizomatous woody, c. 5-8 mm in diameter, 1 or 2 tufts of leaves in the first season, each giving rise to a terminal fl. stem in the second season.
 - 22 Stout woody stock, crowned with thin fibrous leaf bases, roots with fusiform tubers towards the tips.
 - 23 Somewhat creeping, tubers woody, elongated (up to 50 x 10 mm).
 - 24 Somewhat creeping, tubers woody, elongated (up to 80 x 15 mm).
 - 25 Rhizomatous, roots thong-like.
 - 26 Woody and creeping.
 - 27 Creeping.
-

PLANT HEIGHT (MAX.) (CHAR 010)

See Appendix B for data.

LEAF DISTRIBUTION (CHAR 011)

- 01 All cauline.
- 02 Radical and cauline.
- 03 Mostly radical.
- 04 A few radical, but mostly cauline.
- 05 Mostly radical and rosetted.
- 06 Radical and rosetted.
- 07 Cauline, but a basal rosette sometimes present.
- 08 Radical (rosetted) and remotely cauline (few and distant).
- 09 Mostly crowded near the base, distant upwards.
- 10 Mostly crowded near the base, cauline leaves confined to the lower half.
- 11 Mostly radical, a few distant cauline leaves.
- 12 Closely set on the lower part of the stem, becoming distant on the upper half.

APPENDIX A continued

- 13 Radical (when present) rosetted and cauline.
 - 14 Mostly cauline at flowering.
 - 15 Types 7 and 8 occur.
 - 16 Radical leaves in one or several rosettes, cauline leaves also present; radical leaves produced in numerous congested leaf rosettes; older parts of rhizomatous base often clad in thick, marcescent leaf bases.
 - 17 Radical leaves in one or several rosettes, cauline leaves also present.
 - 18 Mostly crowded near the base.
 - 19 All cauline (3-6 (-7) leaves).
 - 20 All cauline (7-13 leaves).
 - 21 All cauline, reasonably uniformly leafy right up to the inflorescence branches.
 - 22 Mostly crowded on the lower part of the stem, then more distant (and decreasing in size) upwards.
 - 23 All cauline, most found on the upper part of the flowering stem.
 - 24 All cauline and restricted to branchlets (old stems nude).
-

LEAF LENGTH (MAX.): RADICAL (CHAR 012)

LEAF LENGTH (MAX.): CAULINE (CHAR 013)

LEAF WIDTH (MAX.): RADICAL (CHAR 014)

LEAF WIDTH (MAX.): CAULINE (CHAR 015)

See Appendix B for quantitative measurements.

LEAF SHAPE: RADICAL (CHAR 016)

- 01 Variable; lanceolate to broadly elliptic, tapering to a petiole up to half the total leaf length; petiole keeled and half clasping.
- 02 Lanceolate, base tapering to a petiole 1/3 to 1/2 the total leaf length; petiole keeled and expanded towards the base.
- 03 Linear to lanceolate, base tapering to a long narrow petiole 1/3 to 1/2 the total leaf length; expanded below and half clasping.
- 04 Elliptic in outline; lyrate-pinnatifid; lobes large, each lobed or repand; sinuses broad, rounded (petiolate).
- 05 Spathulate in outline, tapering to a broadly winged, petiole-like base; lyrate-pinnatifid; apical lobe rounded, lateral lobes oblong, decreasing in size proximally.
- 06 Bipinnatisect or bipinnatifid; up to 1/3 of length is petiolar, lobes linear or lanceolate, acute.
- 07 Pinnatifid; up to 1/3 petiolar; the lobes more or less oblong; margins coarsely toothed or lobed, sometimes also denticulate.
- 08 Spathulate or elliptic; tapering to a broad, flat, petiole-like clasping base, margins pinnately lobed, sinuately lobed, lobulate or coarsely deltoid toothed.
- 09 Oblong to spathulate, tapering to a broad, flat base, but scarcely petioled.
- 10 Spathulate or elliptic, narrowed to a broad, flat, petiole-like base.

APPENDIX A continued

- margins more or less entire or repand-toothed.
- 11 Oblanceolate in outline, 1/2 the length petiolar, blade deeply pinnately lobed, lobes decreasing in size downwards, deltoid or oblong-ovate, sinuses broad.
 - 12 Oblong-elliptic or oblong-spathulate in outline, but deeply and finely dissected, narrowed to a broad, cordate-clasping base.
 - 13 Spathulate, narrowed to a broad, flat petiole-like (clasping) base; margins shallowly and more or less sinuately lobed and toothed or pinnately lobed.
 - 14 Oblong-elliptic or oblong-spathulate; margins coarsely toothed to denticulate.
 - 15 Subrotund, ovate or elliptic; margins subentire, denticulate or more coarsely and often somewhat sinuately toothed; narrowed to a flat petiole-like base.
 - 16 Obovate-elliptic or elliptic; margins lobed and toothed, often lyrate-pinnatifid towards the base, more rarely simply toothed.
 - 17 Variable in shape but always with a long petiole (often twice the length of the blade - max. 120 mm); broadly elliptic to broadly ovate; margins irregularly toothed, the teeth sometimes denticulate.
 - 18 Narrowly elliptic; tapering into a flat, narrowly winged, petiole-like base (margins coarsely and irregularly toothed, the larger teeth and sinuses often denticulate).
 - 19 Subrotund to broadly spathulate or rhomboid; margins entire or obscurely toothed.
 - 20 Narrowly elliptic, base gradually narrowed into the petiole; margins more or less entire or denticulate.
 - 21 Spathulate or elliptic; margins coarsely toothed to sinuate-denticulate.
 - 22 Types 14 and 15.
 - 23 Types 15 and 16.
 - 24 Oblong or oblanceolate in outline, pinnatifid or lobulate, lobes in several pairs, decreasing in size proximally; oblong, rounded, sinuses broad and rounded.
 - 25 Lyrate-pinnatisect, apical lobe up to 60 x 40 mm; deltoid in outline, lateral lobes few and small.
 - 26 Oblanceolate, margins shallowly lobed or deeply toothed.
 - 27 Oblanceolate, margins coarsely and irregularly toothed or lobulate.
 - 28 Lanceolate in outline; margins irregularly serrate to pinnatisect, then lobes more or less oblong, sinuses obliquely rounded, leaf narrowed to a petiole-like base, up to 1/2 the total leaf length.
 - 29 Linear-lanceolate.
 - 30 Oblong or lanceolate.
 - 31 Oblanceolate, petiole-like tapered base accounting for 1/2 the leaf length.
 - 32 Elliptic-lanceolate, up to 1/2 the length petiolar.
 - 33 Elliptic-lanceolate or oblong.
 - 34 Elliptic to subrotund.
 - 35 Orbicular to broadly ovate (on slender petioles up to 60 mm long).
 - 36 Narrowly to broadly elliptic, long petiole-like base.
 - 37 Elliptic.
 - 38 Oblong.

APPENDIX A continued

- 39 Lyrate-pinnatisect, upper expanded part shallowly and irregularly lobed, lowermost lobes often cut to the midrib, few rounded, shortly decurrent onto a flat petiole-like part accounting for 1/2 the leaf length.
- 40 Broadly elliptic.
- 41 Lanceolate to elliptic or sometimes narrowly ovate.
-

LEAF SHAPE: CAULINE (CHAR 017)

01. Lanceolate, tapering to a petiole up to 1/2 the total leaf length, the upper leaves and bracts becoming sessile, broad based and half clasping.
- 02 Lanceolate, base tapering to a petiole 1/3 to 1/2 the total leaf length; petiole keeled and expanded towards the base.
- 03 Linear to lanceolate, base tapering to a long narrow petiole 1/3 to 1/2 the total leaf length, expanded below (and half clasping) - i.e. all the characteristics of the radical leaves, but they soon become sessile, passing into remote lanceolate, half clasping bracts.
- 04 LOWER: elliptic in outline; lyrate-pinnatifid; lobes large, each lobed or repand; sinuses broad, rounded; base tapering into a petiole.
UPPER: similar to lower but smaller, base cordate.
- 05 Elliptic or ovate-elliptic; all but the uppermost usually abruptly contracted to a narrow, flat, winged petiole, expanded at the base into two large, rounded, toothed auricles; uppermost panduriform or broad based; upper margins +/- coarsely and irregularly toothed, lower margins often lobed, occasionally lyrate-pinnatifid.
- 06 Linear-lanceolate to elliptic-lanceolate, tapering to a narrow petiole-like, half clasping base; sometimes minutely eared; margin occasionally pinnately lobed.
- 07 Lyrate or lyrate-pinnatifid, apical lobe triangular; base conspicuously auricled, clasping.
- 08 LOWER: spatulate in outline, base auricled-clasping, lobes large, rounded (making the leaf appear almost perfoliate); margins shallowly lobed and toothed.
UPPER: gradually decreasing in size, becoming oblong then oblong-lanceolate and broadly cordate-clasping, all lobed and toothed.
- 09 Bipinnatisect or bipinnatifid, lobes linear or lanceolate, acute; petiole may be up to 1/3 total length, but tending to become sessile and often ear-clasping.
- 10 Pinnatifid, up to 1/3 petiolar, but tending to become sessile; the lobes more or less oblong; margins coarsely toothed or lobed, sometimes also denticulate; often ear-clasping.
- 11 Oblong, becoming lanceolate upwards and passing into inflorescence bracts.
- 12 Narrowly oblong (most).
- 13 LOWER: oblanceolate in outline, 1/2 the length petiolar; blade deeply pinnately lobed, lobes decreasing in size proximally, deltoid or oblong-ovate, sinuses broad.

APPENDIX A continued

- UPPER: as for lower, but less deeply lobed, passing into linear-lanceolate inflorescence bracts.
- 14 LOWER: Oblong-elliptic or oblong-spathulate in outline, but deeply and finely dissected; narrowed to a broad cordate-clasping base.
UPPER: more or less lanceolate in outline but deeply and finely dissected, becoming lanceolate and entire (broad based, cordate-clasping).
- 15 Oblong to lanceolate, broad, margins sharply lobed or toothed.
- 16 LOWER: Oblong-elliptic or oblong-spathulate, margins coarsely toothed to denticulate.
UPPER: more or less lanceolate; margins coarsely toothed to denticulate.
- 17 Oblong and narrow, the lower cauline leaves often sinuately toothed.
- 18 Oblong to lanceolate, broad based, margins coarsely and irregularly toothed to lobulate, often also remotely denticulate.
- 19 Elliptic or ovate; the lower ones with petioles up to 35 mm long, the upper smaller; margins sinuately lobed or toothed, often lobulate in the lower part.
- 20 LOWER: obovate-elliptic or elliptic, often toothed rather than lobed.
UPPER: lanceolate, toothed.
- 21 Oblong to lanceolate; subhastate, sessile.
- 22 Narrowly elliptic (tapering into a flat narrowly winged or sessile petiole-like base); margins coarsely and irregularly toothed.
- 23 Oblong to lanceolate, broad based.
- 24 LOWER: narrowly or broadly elliptic (tapering to a narrow, flat, winged, petiole-like clasping base).
UPPER: oblong to linear, broad based.
- 25 LOWER: narrowly elliptic.
UPPER: narrowly elliptic to lanceolate, rapidly passing into inflorescence bracts.
- 26 LOWER: narrowly spathulate.
UPPER: becoming oblong then lanceolate (margins almost entire, denticulate, irregularly toothed or subpinnatifid).
- 27 LOWER: elliptic to spathulate.
UPPER: elliptic to spathulate, but smaller than lower, becoming lanceolate and passing into inflorescence bracts.
- 28 Lanceolate to broadly elliptic.
- 29 Mostly linear to narrowly lanceolate.
- 30 Lanceolate; margins entire, sharply serrate or more deeply pinnately divided.
- 31 Linear to linear-lanceolate, tapering at both apex and base.
- 32 Types 16 and 17.
- 33 LOWER: oblong or oblanceolate or linear-lanceolate in outline, pinnatifid or lobulate, oblong or rounded, sinuses broad, rounded.
UPPER: very similar to lower, but passing upwards into inflorescence bracts.
- 34 Oblanceolate or oblong, becoming lanceolate upwards, may be lobulate.
- 35 Oblanceolate or oblong, becoming lanceolate upwards and passing into bracts.

APPENDIX A continued

- 36 Oblong to lanceolate, passing rapidly into inflorescence bracts.
- 37 Linear-lanceolate, passing into inflorescence bracts.
- 38 Oblong in outline, pinnatisect, lobes up to seven each side, distant, oblong.
- 39 Oblong to oblanceolate, the upper often lanceolate.
- 40 Oblanceolate, becoming lanceolate-acute upwards.
- 41 Elliptic lanceolate, (soon passing into lanceolate-acuminate inflorescence bracts).
- 42 Elliptic lanceolate or oblong (soon passing into lanceolate-acute inflorescence bracts).
- 43 Spathulate or oblong (soon passing into lanceolate-acute inflorescence bracts).
- 44 LOWER: narrowly to broadly elliptic.
UPPER: narrowly to broadly elliptic (soon passing into inflorescence bracts).
- 45 Oblong-elliptic (soon passing into lanceolate-acuminate bracts).
- 46 LOWER: oblong to oblanceolate.
UPPER: lanceolate.
- 47 LOWER: lyrate-pinnatisect, upper expanded part shallowly and irregularly lobed, lowermost lobes often cut to the midrib, few, rounded, shortly decurrent onto a flat petiole-like part accounting for approx. 1/2 the leaf length, becoming smaller, deeply pinnatifid, the lobes narrow, patent.
UPPER: much reduced, lanceolate-acuminate, sharply and deeply cut.
- 48 Elliptic to lanceolate.
- 49 LOWER: lanceolate to elliptic or sometimes narrowly ovate.
- 50 Elliptic.
- 51 Orbicular and peltate to deltoid and peltate, or with varying degrees of development of a broad or narrow sinus, then either more or less peltate or the petiole arising at the base of the sinus - often varied on a single plant.
- 52 Rhomboid or obovate.
- 53 Oblong or lanceolate-oblong.
- 54 LOWER: spathulate and elliptic.
UPPER: oblong-lanceolate to lanceolate, passing into distant lanceolate-acuminate bracts.
- 55 Lanceolate-elliptic, oblong-elliptic, ovate or suborbicular.
- 56 LOWER: oblong, oblong-elliptic, oblong-ovate, occasionally obovate.
UPPER: as for lower, but sometimes lanceolate-acuminate.
- 57 Lanceolate to linear-lanceolate, occasionally more or less elliptic, the lowermost sometimes oblanceolate (when margins of upper leaves rolled under, becoming long-acuminate).
- 58 Lyrate-pinnatifid; apical lobe very large, often more or less folded lengthwise, somewhat falcate; lanceolate to narrowly elliptic to acute; lower lobes 2-4 each side (of the petiole-like base); lanceolate, tapering at both ends; very small.
- 59 Lyrate-pinnatifid; apical lobe very large, narrowly to broadly elliptic, tapering at both ends; lower lobes 2-4 each side (of the petiole-like base); linear or lanceolate.
- 60 Panduriform, lamina ovate.
- 61 Pinnatisect, lobes 3-4 each side, distant, linear-lanceolate.

APPENDIX A continued

- 62 Obovate.
- 63 Terete and slightly curved.
- 64 Broadly spatulate to suborbicular.
- 65 Oblanceolate.
- 66 Deltoid-ovate in outline, sharply 3-5 lobed on either side, sinuses broad.
- 67 Deltoid to deltoid-hastate.
- 68 Deltoid (more or less), unequally lobed (lobes deltoid, acute, with broad round sinuses).
- 69 Ovate-deltoid in outline; shallowly and acutely lobed or toothed, the sinuses broad.
- 70 Rhomboid or deltoid-ovate in outline; bluntly 3-5 angled or shallowly lobed with broad rounded sinuses, lobes deltoid.
- 71 Oblong in outline, closely or more distantly pinnatisect; upper lobes sometimes bipinnatisect.
- 72 Oblong in outline, closely pinnatisect or bipinnatisect.
- 73 Fusiform (drying somewhat linear-falcate).
- 74 Oblong to elliptic.
- 75 Elliptic in outline; pinnatifid; sinuses shallow to deep; lobes acute to obtuse.
- 76 Polymorphous; oblong or obovate, subentire, or toothed; lyrate, pinnatifid or bipinnatifid (lobes cuneate, toothed or incised).
- 77 Lanceolate, coarsely few-toothed, tapering to (sessile) base.
- 78 Polymorphous; oblong subentire or toothed, lyrate pinnatifid, pinnati-partite with cuneate, toothed or incised lobes.
- 79 Obovate in outline; bluntly pinnatifid, lobes often coarsely toothed or lobed.
- 80 Pinnatifid or bipinnatifid; lobes narrow; deeply dissected, sometimes coarsely but sparsely toothed (oblong in outline).
- 81 Obovate-lanceolate.
- 82 Pinnatifid to bipinnatifid; broad lobes, lobes often coarsely toothed; oblong in outline.
- 83 Pinnatifid to bipinnatifid, lobes narrow to broad, obovate in outline.
- 84 Polymorphous; oblong or obovate; pinnatifid; lobes oblong or short.
- 85 Polymorphous; usually lyrate-pinnatifid, terminal lobe oblanceolate or obovate; lateral lobes narrow or broad or oblong and coarsely toothed.
- 86 Ovate-deltoid.
- 87 Obovate to elliptic.
- 88 Ovate-elliptic to lyrate-pinnatifid in outline (margin shallowly lobed).
- 89 Ovate to elliptic.
- 90 Elliptic.
- 91 Mostly reniform in outline (the uppermost sometimes lyrate-pinnatifid or with the basal auricles merging with the lamina); mostly with 6-8 shallow oblong lobes.
-

APPENDIX A continued

LEAF APEX: RADICAL (CHAR 018)

- 01 Acute to acuminate.
 - 02 Acuminate.
 - 03 Acute or subacute.
 - 05 Rounded.
 - 06 Acute.
 - 07 Subacute to obtuse.
 - 08 More or less obtuse.
 - 09 Subacute.
 - 10 Obtuse.
 - 11 Rounded or very obtuse.
 - 12 Obtuse or rounded.
 - 13 Types 9 and 10.
 - 14 Acute to obtuse.
 - 15 Gradually acute.
-

LEAF APEX: CAULINE (CHAR 019)

- 01 Acute to acuminate.
 - 02 Acuminate.
 - 03 Acute or subacute.
 - 05 Acute or obtuse (predom. acute).
 - 06 Acute.
 - 07 LOWER: rounded.
UPPER: rounded/acute.
 - 08 Subacute to obtuse.
 - 09 More or less obtuse.
 - 10 Subacute.
 - 11 Obtuse or rounded.
 - 12 Acute to obtuse.
 - 13 Obtuse.
 - 14 Obtuse, apices of upper leaves becoming acute.
 - 15 Gradually acute.
 - 16 No distinct apex (leaf shape very variable).
 - 17 Subacute, mucronate.
 - 18 Acute to subacuminate.
 - 19 Obtuse, subacute or acute to acuminate.
 - 20 Subacute to acute.
 - 21 Blunt (truncate) or sub-acute, mucronate.
 - 22 Acute, mucronate.
 - 23 Mucronate.
-

LEAF MARGIN: RADICAL (CHAR 020)

- 01 Thickened, obscurely to markedly callose-denticulate.
- 02 Leathery, densely callose-crenulate.
- 03 Obscurely or distinctly, minutely and closely callose-crenulate.
- 04 Denticulate.

APPENDIX A continued

- 05 Toothed on crests of shallow lobes.
 06 Sometimes toothed.
 07 Coarsely toothed (or lobed), sometimes also denticulate.
 08 Margins of lobes often denticulate.
 09 Entire, sinuate or sometimes shallowly toothed or denticulate or repand.
 10 More or less entire or repand-toothed.
 11 Larger leaves with a coarse tooth on the lower margin (blade deeply pinnately lobed).
 12 Coarsely toothed to denticulate.
 13 Shallowly and more or less sinuately lobed and toothed or pinnately lobed.
 14 Subentire, denticulate or more coarsely and often somewhat sinuately toothed.
 15 Lobed and toothed, often lyrate-pinnatifid towards the base, more rarely simply toothed.
 16 Irregularly toothed, the teeth sometimes denticulate.
 17 Coarsely and irregularly toothed, the larger teeth and the sinuses often denticulate.
 18 Entire or obscurely toothed.
 19 More or less entire or denticulate.
 20 Coarsely toothed to sinuate-denticulate.
 21 Types 12 and 14.
 22 Denticulate or more coarsely toothed or lobed, sinuses often denticulate.
 23 Sinuate-serrulate or more coarsely and irregularly toothed or lobed.
 24 Denticulate or in small leaves sometimes sinuate-denticulate.
 25 Coarsely and irregularly toothed or lobulate, the lower part often merely denticulate.
 26 Margins irregularly serrate to pinnatisect, then the lobes more or less oblong, usually toothed, sinuses obliquely rounded.
 27 Margins often revolute, entire or nearly so in narrow leaves; callose-serrate or callose-serrulate in the broad ones, the larger teeth very rarely denticulate, though sometimes interspersed with smaller teeth.
 28 Margins doubly callose-serrate, rarely only serrate.
 29 Margins irregularly callose-serrate or serrulate, often doubly so, occasionally lobulate.
 30 Closely and minutely callose-denticulate.
 31 Margins thickened, nearly entire to crenulate or denticulate, ciliate.
 32 Callose-dentate.
 33 Minutely callose-denticulate.
 34 Closely and minutely callose-denticulate, somewhat undulate.
 35 More or less entire to callose-denticulate.
 36 Thickened, remotely and obscurely callose-denticulate.
 37 Irregularly dentate.
 38 Subrevolute, callose-denticulate.
 39 Callose-crenulate or denticulate, sometimes irregularly callose-serrate.
-

APPENDIX A continued

LEAF MARGIN: CAULINE (CHAR 021)

- 01 Thickened, obscurely to markedly callose-denticulate.
- 02 Leathery, densely callose-crenulate.
- 03 Obscurely or distinctly, minutely and closely callose-crenulate.
- 04 Denticulate.
- 05 IN THE UPPER PART: coarsely and irregularly toothed.
IN THE LOWER PART: often deeply lobed and coarsely and irregularly toothed; callose-denticulate.
- 06 Coarsely and irregularly toothed.
- 07 Margins denticulate to coarsely and irregularly toothed.
- 08 Remotely callose-denticulate.
- 09 Toothed on crests of shallow lobes.
- 10 Sometimes toothed.
- 11 Coarsely toothed (or lobed), sometimes also denticulate.
- 12 Often finely or coarsely toothed.
- 13 Entire, sinuate or sometimes shallowly toothed or denticulate or repand.
- 14 More or less entire or repand-toothed.
- 15 Entire.
- 16 Coarsely toothed to denticulate.
- 17 Sharply lobed or toothed.
- 18 Subentire, denticulate or more coarsely and often somewhat sinuately toothed.
- 19 Coarsely and irregularly toothed to lobulate, often remotely denticulate as well.
- 20 Sinuately lobed or toothed, often lobulate in the lower part.
- 21 Often toothed rather than lobed.
- 22 Coarsely and irregularly toothed, the larger teeth and sinuses often denticulate.
- 23 Callose dentate or denticulate, sometimes leathery.
- 24 More or less entire or denticulate.
- 25 Almost entire, denticulate, irregularly toothed or subpinnatifid.
- 26 Nearly entire, denticulate, or coarsely toothed and denticulate, occasionally pinnately cut.
- 27 Denticulate, rarely more coarsely toothed or lobed.
- 28 More or less revolute, denticulate, sometimes more coarsely toothed or pinnately lobed.
- 29 Revolute, entire, sharply serrate or more deeply pinnately divided.
- 30 Margins generally revolute, smooth or denticulate.
- 31 Types 16 and 18.
- 32 Types 1 and 24.
- 33 Sharply serrate.
- 34 Margins lobulate, serrate or serrulate.
- 35 Variously toothed.
- 36 Serrulate to denticulate.
- 37 Coarsely and sharply toothed.
- 38 Margins often revolute, entire or nearly so in narrow leaves; callose-serrate or callose-serrulate in broad leaves; the larger teeth very rarely denticulate though sometimes interspersed with

APPENDIX A continued

- smaller teeth.
- 39 Serrate or doubly serrate.
 - 40 Margins irregularly callose-serrate or serrulate, often doubly so, occasionally lobulate.
 - 41 Closely and minutely callose-denticulate.
 - 42 Margins thickened, nearly entire to crenulate or denticulate, cillilate.
 - 43 Callose-dentate to toothed (on lobes).
 - 44 Minutely callose-denticulate.
 - 45 Closely and minutely callose-denticulate, somewhat undulate.
 - 46 More or less entire to callose-denticulate.
 - 47 Thickened, remotely and obscurely callose-denticulate.
 - 48 Irregularly and sharply cut.
 - 49 Subrevolute, callose-denticulate.
 - 50 Callose-crenulate or denticulate, sometimes irregularly callose-serrate.
 - 51 Rarely entire or nearly so, usually at least sinuate and distantly callose-denticulate, or often more coarsely, irregularly and sharply callose-dentate or sharply angled.
 - 52 Distantly callose-denticulate in the upper part; sinuate-lobed or more sharply toothed.
 - 53 Entire or distantly callose-denticulate often somewhat revolute.
 - 54 Thickened, callose-crenulate or denticulate.
 - 55 Thickened, entire or distantly callose-denticulate, often somewhat revolute.
 - 56 Thickened, beset with spinose teeth, often rolled under between the teeth, giving a scalloped effect.
 - 57 Thickened, entire or distantly and often obscurely callose-denticulate, often somewhat revolute.
 - 58 Thickened, entire or remotely and obscurely callose-denticulate, often somewhat revolute, rarely more coarsely and sharply toothed.
 - 59 Thickened, distantly callose-denticulate, sometimes obscurely so, occasionally entire.
 - 60 Thickened, distantly callose-denticulate or subentire, those of the upper leaves often rolled under.
 - 61 Margins of apical lobe more or less doubly serrate, the tip of each main tooth slightly incurved; margins of (small) lower lobes entire or few-toothed.
 - 62 Margins of apical lobe thickened, sharply serrulate, the teeth sometime rather coarse; margins of (small) lower lobes entire or few toothed.
 - 63 Margins thickened, dentate to denticulate.
 - 64 Revolute.
 - 65 Entire to coarsely and irregularly toothed in the upper half, slightly undulate.
 - 66 Entire to coarsely and irregularly toothed in the expanded part.
 - 67 More or less entire, repand, crenate-serrate or denticulate, occasionally more coarsely toothed or slightly angled.
 - 68 Three to five lobed on either side.
 - 69 Irregularly dentate or denticulate.
 - 70 Deltoid lobes; apices acute; with broad round sinuses.

APPENDIX A continued

- 71 Shallowly and acutely lobed or toothed, the sinuses broad, often denticulate.
 - 72 May be shallowly lobed with broad rounded sinuses (otherwise bluntly 3-5 angled).
 - 73 Lobes simple or often the upper ones toothed.
 - 74 Coarsely toothed to finely toothed or entire.
-

LEAF BASE: RADICAL (CHAR 022)

- 01 Gradually tapering (attenuate).
- 02 Broad-winged petiole-like base, half-clasping.
- 03 Abrupt attenuation into petiole.
- 04 Petiolar.
- 05 Long, broad and flat, petiole-like (clasping).
- 06 Long, broad and flat but scarcely petioled (not clasping).
- 07 Broad, flat, petiole-like base.
- 08 Somewhat narrowed to a broad cordate-clasping base.
- 09 Narrowed to a flat petiole-like base.
- 10 Narrowly decurrent onto the long petiole.
- 11 Cuneate to cordate.
- 12 Narrowly winged, petiole-like.
- 13 Very short, broad flat, petiole-like.
- 14 Gradually tapering into a petiole (up to 75 mm long).
- 15 Gradually narrowed to a long flat petiole.
- 16 Tapering to a petiole up to half the total leaf length, a little clasping.
- 17 Types 8 and 9.
- 18 More or less truncate.
- 19 Leaf narrowed to a broad, flat petiole-like base.
- 20 Narrowed to a petiole-like base, up to 1/2 the total leaf length, expanded below.

APPENDIX A continued

- 21 Narrowed to a flat petiole-like base; expanded below.
 - 22 Tapering to a broad flat petiole-like base, expanded below.
 - 23 Tapering to a flat petiole-like base, accounting for 1/2 the total leaf length, base expanded.
 - 24 Tapering gradually to a narrowly winged petiolar part, 1/2 the total leaf length, petiolar, base expanded.
 - 25 Narrowed to a broad, petiole-like base, expanded below.
 - 26 Narrowed to a short flat petiole-like base.
 - 27 Cordate to subtruncate.
 - 28 Tapering to a broad petiole-like base (clasping).
 - 29 Broad based.
 - 30 Tapering into a broadly winged petiolar region, expanded at the base.
 - 31 Tapering to a petiole up to 1/2 the total leaf length.
-

LEAF BASE: CAULINE (CHAR 023)

- 01 The lower attenuate or abruptly contracted.
- 02 Gradual attenuation.
- 03 LOWER: broad-based.
UPPER: broad-based, cordate.
- 04 Gradual attenuation into a narrow petiole-like base; sometimes minutely eared.
- 05 Conspicuously auricled, clasping.
- 06 LOWER: sessile, base auriculate-clasping.
UPPER: broadly cordate-clasping.
- 07 Some with abrupt attenuation into petiole, others sessile and often eared.
- 08 Petiolar, but tending to become sessile, often ear-clasping.
- 09 Subauricled, clasping.
- 10 Broad and flat, virtually sessile.
- 11 Subcordate, clasping.
- 12 Petiolar.
- 13 LOWER: somewhat narrowed to a broad, clasping base.
UPPER: broad-based, cordate-clasping.
- 14 Broad based
- 15 Base broad, cordate-clasping and slightly decurrent.
- 16 LOWER: attenuate into a petiole.
UPPER: broad-based and a little clasping.
- 17 Subhastate, clasping.
- 18 Narrowly winged, petiole-like, the upper tapering a little; sessile.
- 19 LOWER: tapering to a narrow, flat, winged, petiole-like, clasping base.
UPPER: broad based and ear-clasping.
- 20 LOWER: narrowed, flat, clasping.
UPPER: broad based (sessile), cordate-clasping.
- 21 Tapering to a petiole-like base.
- 22 Half-clasping, often hastately eared, lower leaves sometimes narrowed to a petiole-like base.

APPENDIX A continued

- 23 Base narrowed, petiole-like, sometimes slightly eared, sometimes decurrent.
- 24 LOWER: tapering to a petiole, up to 1/2 the total leaf length.
UPPER: sessile, broad based.
- 25 Sessile and eared.
- 26 Base eared.
- 27 LOWER: petiole-like base - broadened.
UPPER: sessile - broadened.
- 28 LOWER: tapering to flat petiole-like base, accounting for 1/2 the leaf length, base expanded.
UPPER: sessile.
- 29 LOWER: tapering gradually to a narrowly winged petiolar part, base expanded.
UPPER: sessile, often somewhat eared at the base, sometimes very shortly decurrent (both lower and upper are rather stiff, erect and crowded).
- 30 LOWER: narrowed to a broad petiole-like base, expanded below, base eared.
UPPER: sessile, base eared.
- 31 LOWER: tapering to a petiole.
UPPER: sessile.
- 32 Sessile, often somewhat auricled, often more or less decurrent, occasionally the stem wings broad and conspicuous (wings entire or callose-toothed).
- 33 Abruptly attenuated to a terete petiole or petiole arising from a semipeltate shaped leaf; petiole up to 150 mm long.
- 34 Tapering to a broad, flat, petiole-like base.
- 35 LOWER: contracted into a broad, flat, petiole-like base (up to c. 40 mm).
UPPER: gradual attenuation; sessile.
- 36 Often minutely eared, sometimes slightly decurrent.
- 37 More or less cordate-clasping, often very shortly decurrent.
- 38 More or less cordate, half-clasping, sometimes slightly decurrent.
- 39 More or less cordate and half-clasping or broad and minutely eared.
- 40 Petiole-like.
- 41 Broad, subcordate or cuneate, where it is abruptly contracted to the broadly winged petiolar part, base amply eared.
- 42 Sessile or nearly so.
- 43 Narrowed, flat, petiole-like.
- 44 Abruptly contracted.
- 45 Narrowed and gutter shaped.
- 46 Tapering to a petiole (up to 20 mm long).
- 47 Cordate to hastate, petiole about as long as the blade, often twisted, usually with two small leaf-like auricles at the base.
- 48 More or less cordate to truncate; petioles 1/3 to 1/2 the length of the blade.
- 49 Hastate (somewhat) or cuneate, petiole about as long as the blade.
- 50 More or less cordate; petiole about as long as the blade.
- 51 Broadly cuneate to subtruncate; petioles up to c. 50 mm long, prehensile, becoming woody in the lower part and forming a persistent hook after leaf abscission.

APPENDIX A continued

- 52 Distinctly petioled or sessile.
 - 53 Broad, petiole-like base.
 - 54 Narrowed to a short petiole-like base.
 - 55 Sessile and eared (duplicate of no. 25).
 - 56 Broad based, eared and cordate.
 - 57 Sessile and attenuate.
 - 58 Saggitate.
 - 59 LOWER: petiolate.
UPPER: broad based, eared.
 - 60 Petiole up to 70 mm long, often becoming narrowly winged towards the base, the wings merging into the large, toothed, more or less reniform auricles.
-

LEAF VENATION: RADICAL (CHAR 024)

- 01 Distinct midrib, lateral venation indistinct.
 - 02 Distinct midrib and reticulate venation on abaxial surface.
 - 03 Distinct midrib and sparse lateral venation (1 down each lobe and down each 'pinnule')
 - 04 Distinct midrib and distinct lateral vein in each lobe (abaxial surface).
 - 05 Indistinct.
 - 06 Distinct midrib and distinct lateral veins.
 - 07 Ascending, spreading from the base.
-

LEAF VENATION: CAULINE (CHAR 025)

- 01 Distinct midrib, lateral venation indistinct.
- 02 Distinct midrib and reticulate venation (very noticeable) on the abaxial surface.
- 03 Distinct midrib and reticulate venation on abaxial surface.
- 04 Distinct midrib and sparse lateral veins (1 down each lobe and down each 'pinnule').
- 05 Distinct midrib and distinct lateral vein in each lobe (abaxial surface).
- 06 Indistinct.
- 07 Distinct midrib and distinct lateral veins.
- 08 Usually radiating from a peltate positioned petiole.
- 09 Distinct midrib, side veins distinct or obscure; few, sharply ascending.
- 10 Distinct midrib, main side veins ((5) -7-12), lesser veins not or scarcely visible or all gradations to a raised reticulate venation.
- 11 Distinct midrib, main side veins c. 5-10, sharply ascending, subsidiary veins seldom clearly visible.
- 12 Distinct midrib, side veins sharply ascending but scarcely visible.
- 13 Distinct midrib in apical lobe and lower lobes; apical lobe penninerved, 10-16 veins each side; venation of lower lobes indistinct.
- 14 Triplinerved apical lobe; venation in lower side lobes indistinct.

APPENDIX A continued

- 15 Penninerved.
 - 16 Usually radiating from a +- hastate base (base sometimes cuneate).
 - 17 Digitately 3-nerved.
-

LEAF TEXTURE: RADICAL (CHAR 026)

- 01 Leathery.
 - 02 Foliaceous and pubescent.
 - 03 Membranous and pubescent.
 - 04 Foliaceous, feels glabrous and viscid.
 - 05 Foliaceous, usually glandular-pubescent, sometimes glabrous, sometimes lightly cobwebby below.
 - 06 Foliaceous, shortly glandular-pubescent, sometimes lightly cobwebbed below at first.
 - 07 Foliaceous, densely covered with long (pilose) and shaggy (villous) gland-tipped hairs.
 - 08 Foliaceous and coarsely glandular-pubescent.
 - 09 Foliaceous and densely glandular-pilose; clammy when fresh.
 - 10 Foliaceous and softly glandular-pilose.
 - 11 Foliaceous and harshly glandular-pubescent (short-hispid).
 - 12 Foliaceous and moderately glandular-pilose.
 - 13 Foliaceous and glabrous.
 - 14 Foliaceous and moderately glandular-pubescent.
 - 15 Foliaceous, glandular-pubescent to softly pilose.
 - 16 Thick-textured, rigid.
 - 17 Coriaceous.
 - 18 Foliaceous and sparsely glandular-pubescent.
 - 19 Foliaceous and sparsely pubescent.
 - 20 Membranous.
 - 21 Slightly fleshy.
 - 22 Foliaceous, on long winy petioles.
 - 23 Membranous or slightly coriaceous.
-

LEAF TEXTURE: CAULINE (CHAR 027)

- 01 Leathery.
- 02 Foliaceous and pubescent.
- 03 Foliaceous and scabrid-pubescent.
- 04 Foliaceous and glabrous.
- 05 Membranous and glabrous.
- 06 Membranous and thinly hairy.
- 07 Membranous and pubescent.
- 08 Foliaceous, feels glabrous and viscid.
- 09 Foliaceous, usually glandular-pubescent, sometimes glabrous, sometimes lightly cobwebby below.
- 10 Foliaceous, shortly glandular-pubescent, sometimes lightly cobwebbed below at first.
- 11 Foliaceous, densely covered with long (pilose) and shaggy (villous) gland-tipped hairs.

APPENDIX A continued

- 12 Foliaceous and coarsely glandular-pubescent.
- 13 Foliaceous, densely glandular-pilose, clammy when fresh.
- 14 Foliaceous and softly glandular-pilose.
- 15 Foliaceous and densely glandular-pubescent.
- 16 Foliaceous and harshly glandular-pubescent (short-hispid).
- 17 Foliaceous and moderately glandular-pilose.
- 18 Somewhat leathery, both surfaces glabrous or very nearly so.
- 19 Foliaceous and moderately glandular-pubescent.
- 20 Foliaceous, slightly harshly glandular-pubescent.
- 21 Fleshy and glabrous.
- 22 Foliaceous and glabrous or very sparsely hairy, rarely more densely so.
- 23 Foliaceous, abaxial surface white-felted, adaxial surface scabrid or glabrous.
- 24 Foliaceous, and nearly glabrous or sparsely scabrid-pubescent.
- 25 Foliaceous, glandular-pubescent to softly pilose.
- 26 Thick-textured, rigid.
- 27 Coriaceous.
- 28 Foliaceous and sparsely glandular-pubescent.
- 29 Foliaceous and sparsely pubescent.
- 30 Membranous.
- 31 Slightly fleshy.
- 32 Foliaceous, lower cauline on long wiry petioles.
- 33 Membranous or slightly coriaceous.
- 34 Fleshy, glabrous, sometimes glaucous.
- 35 Fleshy, glaucous.
- 36 Leathery or rigid; glabrous.
- 37 Leathery; glabrous.
- 38 Leathery (when fresh), drying leathery or rigid.
- 39 Succulent and pubescent.
- 40 Succulent and glabrous.
- 41 Succulent, glabrous and glaucous.
- 42 Fleshy (+-), glabrous to thinly hairy on abaxial surface.
- 43 Succulent and glabrous or thinly hairy on abaxial surface.
- 44 Foliaceous and glabrous or thinly hairy on abaxial surface.
- 45 Thick-textured (leathery), abaxial surface often woolly or cobwebby, glabrescent.
- 46 Foliaceous.
- 47 Foliaceous, young leaves white-woolly, older leaves becoming glabrous (glandular).
- 48 Slightly fleshy, thinly cobwebbed at first, later glabrous or nearly so.

LEAF ATTACHMENT: RADICAL (CHAR 028)

- 01 Half-clasping, petiolate.
- 02 Half-clasping, base of petiole expanded.
- 03 Petiolate.
- 04 Half-clasping, broadly winged, petiole-like base.
- 05 Petiole-like, clasping base.

APPENDIX A continued

- 06 Scarcely petioled (virtually sessile).
 - 07 Broad cordate-clasping base.
 - 08 Petiolate; petiole up to 120 mm long (often twice the length of the blade), semi terete.
 - 09 Narrowly winged, petiole-like base.
 - 10 Broad, flat, petiole like, half-clasping.
 - 11 Flat petiole.
 - 12 half-clasping, petiole-like base.
 - 13 Petiolate, base abruptly expanded.
 - 14 Broad, flat, petiole-like, clasping.
 - 15 Half-clasping, expanded petiole-like base.
 - 16 Petiole-like base, base expanded below; clasping; imbricate.
 - 17 Petiole-like base, expanded and half-clasping.
 - 18 Petiole-like base, expanded and clasping.
 - 19 Petiole-like base, broad, clasping.
 - 20 Half-clasping, broadly winged, petiole-like and expanded base.
-

LEAF ATTACHMENT: CAULINE (CHAR 029)

- 01 Half-clasping, petiolate; upper leaves/bracts sessile.
- 02 Half-clasping, base of petiole expanded.
- 03 LOWER: petiolate, base expanded and half sessile.
UPPER: sessile.
- 04 LOWER: petiolate.
UPPER: cordate-clasping.
- 05 LOWER: petiolate.
UPPER: auriculate-clasping.
- 06 Half-clasping, sessile or semi-petiolate base; sometimes minutely eared.
- 07 Clasping, sessile.
- 08 LOWER: sessile, base auriculate-clasping.
UPPER: sessile and cordate clasping.
- 09 Some petiolate, but most sessile and often ear-clasping.
- 10 Clasping (subauricled).
- 11 Clasping (subcordate).
- 12 Petiolate.
- 13 LOWER: broad, cordate-clasping.
UPPER: broad based, cordate-clasping.
- 14 Cordate-clasping.
- 15 Cordate-clasping and slightly decurrent.
- 16 Sessile.
- 17 Narrowly winged, petiole-like base or broad based (tapering a little) and sessile.
- 18 LOWER: petiole-like, clasping base.
UPPER: broad based and ear-clasping.
- 19 LOWER: moderately broad (3-5 mm), petiole-like, clasping.
UPPER: sessile, cordate-clasping.
- 20 Half-clasping, petiolate.
- 21 Half-clasping, often hastately eared, lower leaves sometimes petiolate.

APPENDIX A continued

- 22 Petiolate, sometimes decurrent.
 23 Sessile and half-clasping.
 24 Clasping, base broad.
 25 Half-clasping, eared base.
 26 LOWER: broadened, petiole-like, ear-clasping.
UPPER: broadened, sessile, ear clasping.
 27 Sessile, often cordate-clasping.
 28 LOWER: petiole-like base, expanded, half-clasping.
UPPER: sessile and half-clasping.
 29 LOWER: expanded and clasping.
UPPER: sessile.
 30 Sessile, broad base, cordate-clasping.
 31 LOWER: broad based, petiole-like, half-clasping.
UPPER: broad based, sessile.
 32 Cordate-clasping, sometimes slightly decurrent.
 33 LOWER: petiolate.
UPPER: sessile, ear-clasping.
 34 Sessile, broad based, oftn somewhat auricled, often more or less decurrent.
 35 Clasping, sometimes slightly decurrent.
 36 Cordate, half-clasping, sometimes slightly decurrent.
 37 More or less cordate and half-clasping or broad and minutely eared.
 38 Petiolate (petiole-like base).
 39 Broadly winged, half-clasping, amply eared.
 40 Sessile or nearly so.
 41 Petiolate or sessile.
 42 Broad, half-clasping.
 43 Broad based and clasping.
 44 Sessile, saggitate.
-

LEAF PUBESCENCE (ABAXIAL): RADICAL

(CHAR 030)

- 01 A wispy, cobwebby vestiture, scattered masses (semi villous).
 02 Thinly white, woolly-cobwebby, not in scattered masses, but +- evenly distributed; appressed on leaf, +- absent in old leaves; often persisting only at nodes and involucre bases (not always easily visible).
 03 Pubescent, especially along the veins.
 04 Moderately pubescent, equal distribution.
 05 All glabrous or very sparsely glandular-pubescent.
 06 Densely pubescent.
 07 Glandular-pubescent, sometimes glabrous, sometimes lightly cobwebby below.
 08 Shortly pubescent, sometimes lightly cobwebbed below at first.
 09 Covered with long (c. 20 cells long) (pilose) and shaggy (villous), gland-tipped hairs; sometimes purple coloured.
 10 Moderately coarsely glandular-pubescent.
 11 Densely glandular-pilose.
 12 Moderately glandular-pilose.

APPENDIX A continued

- 13 Moderately glandular-hispid.
 - 14 Glabrous.
 - 15 Moderately glandular-pubescent, sometimes glabrous.
 - 16 Types 12 and 14.
 - 17 Moderately pubescent, especially along the veins.
 - 18 Nearly glabrous to moderately glandular-pubescent.
 - 19 Thinly glandular-pubescent; very short hairs (2-5 cells long).
 - 20 Densely glandular-pubescent.
 - 21 Minutely glandular-scabrid.
 - 22 Harshly glandular-pilose to glandular-pubescent.
 - 23 Thinly pilose, mainly along mid-vein.
 - 24 Sparsely glandular-pubescent.
 - 25 Sparsely pubescent.
 - 26 Moderately harshly pubescent.
 - 27 Lightly cobwebby, usually glabrescent, persistently woolly in the leaf axils.
 - 28 Enveloped in pale grey woolly tomentum; tomentum eventually peeling to a cobwebby surface.
 - 29 Very sparsely pubescent (or glabrous), a few cottony-cobwebby hairs sometimes at the base.
 - 30 Thinly pubescent.
 - 31 Thinly cobwebbed at first, soon glabrescent (cobwebbed by thread-like apices of midrib and marginal hairs intertwining - hairs only found along midribs and margins).
 - 32 Sparsely pubescent, sometimes with traces of cobwebby wool.
-

LEAF PUBESCENCE (ABAXIAL): CAULINE

(CHAR 031)

- 01 A wispy cobwebby vestiture; scattered masses; semi-villous.
- 02 Thinly white woolly-cobwebby, not in scattered masses, but +- evenly distributed, appressed on leaf; +- absent in old leaves, often persisting only at nodes and involucre bases.
- 03 Pubescent, especially along the veins.
- 04 Scabrid-pubescent, often densely so.
- 05 Glabrous.
- 06 Very sparsely hairy or glabrous.
- 07 Sparsely hairy, more hairy along veins.
- 08 Densely pubescent (equal distribution).
- 09 All glabrous or very sparsely glandular-pubescent.
- 10 Glandular-pubescent, sometimes glabrous, sometimes cobwebby below.
- 11 Shortly pubescent, sometimes lightly cobwebbed below at first.
- 12 Covered with long (c. 20 cells long) (pilose) and shaggy (villous) gland-tipped hairs; sometimes purple coloured.
- 13 Moderately coarsely glandular-pubescent.
- 14 Densely glandular-pilose.
- 15 Densely glandular-pubescent.
- 16 Moderately glandular-pilose.
- 17 Moderately glandular-hispid (short hairs - 2-4 cells long).
- 18 Moderately glandular-pubescent, sometimes glabrous.

APPENDIX A continued

- 19 Moderately dense, slightly harshly glandular-pubescent (pilose).
- 20 Covered with a mat of pilose and villous hairs.
- 21 Sparsely scabrid-pubescent.
- 22 Very sparsely pubescent.
- 23 Occasionally glabrous, usually sparsely hairy, more hairy along veins.
- 24 Types 5 and 16.
- 25 Nearly glabrous to moderately glandular-pubescent.
- 26 Thinly glandular-pubescent - very short hairs (2-5 cells long).
- 27 Minutely glandular-scabrid.
- 28 Harshly glandular-pilose to glandular-pubescent.
- 29 Thinly pilose, mainly along mid-veins.
- 30 Sparsely glandular-pubescent.
- 31 Sparsely pubescent.
- 32 Moderately pubescent.
- 33 Lightly cobwebby, usually glabrescent, persistently silky-woolly in the leaf axils.
- 34 Enveloped in pale grey woolly tomentum; tomentum eventually peeling to a cobwebby surface.
- 35 Very sparsely pubescent (or glabrous), a few cottony-cobwebby hairs sometimes at the base.
- 36 Thinly pubescent.
- 37 Thinly cobwebbed at first, soon glabrescent; hairs predominately along midrib and margins.
- 38 Sparsely pubescent, sometimes with traces of cobwebby wool.
- 39 White-felted.
- 40 White-felted at first; glabrescent.
- 41 Sparsely pubescent along margins.
- 42 Lightly cobwebby, glabrescent.
- 43 Loosely woolly at first, soon glabrous.
- 44 Densely grey-woolly, glabrescent.
- 45 Loosely woolly, glabrescent.
- 46 Thinly pilose.
- 47 Thinly glandular-pubescent, sometimes pilose.
- 48 Thinly glandular-pubescent.
- 49 Densely pilose.
- 50 Sparsely or moderately pubescent.

LEAF PUBESCENCE (ADAXIAL): RADICAL
 (CHAR 032)

- 01 A wispy, cobwebby indumentum, scattered masses (semi villous).
- 02 Thinly white woolly-cobwebby, not in scattered masses, but +- evenly distributed; appressed on leaf; +- absent in old leaves; often persisting only at nodes and involucre bases; not always easily visible.
- 03 Pubescent, especially along the veins.
- 04 Moderately pubescent; equal distribution.
- 05 All glabrous or very sparsely glandular-pubescent.
- 06 Densely pubescent.

APPENDIX A continued

- 07 Pubescent; sometimes glabrous.
 - 08 Shortly pubescent.
 - 09 Covered with long (pilose - c. 20 cells) and shaggy (villous) gland-tipped hairs; sometimes purple coloured at base of plant.
 - 10 Coarsely glandular-pubescent.
 - 11 Densely glandular-pilose.
 - 12 Moderately coarsely glandular-pubescent.
 - 13 Moderately glandular-pilose.
 - 14 Moderately glandular-hispid.
 - 15 Glabrous.
 - 16 Moderately glandular-pubescent.
 - 17 Types 13 and 15.
 - 18 Nearly glabrous to moderately glandular-pubescent.
 - 19 Thinly glandular-pubescent - very short hairs (2-5 cells long).
 - 20 Densely glandular-pubescent.
 - 21 Minutely glandular-scabrid.
 - 22 Harshly glandular-pilose to glandular-pubescent.
 - 23 Sparsely glandular-pubescent.
 - 24 Sparsely pubescent.
 - 25 Moderately harshly pubescent.
 - 26 Lightly cobwebby, usually glabrescent; persistently silky-woolly in the leaf axils.
 - 27 Enveloped in pale grey woolly tomentum; tomentum eventually peeling to a cobwebby surface.
 - 28 Very sparsely pubescent (or glabrous), a few cottony-cobwebby hairs sometimes at the base.
 - 29 Thinly pilose.
 - 30 Thinly pubescent.
 - 31 Thinly cobwebbed at first, soon glabrescent (margins and midribs).
 - 32 Sparsely pubescent, sometimes with traces of cobwebby wool.
-

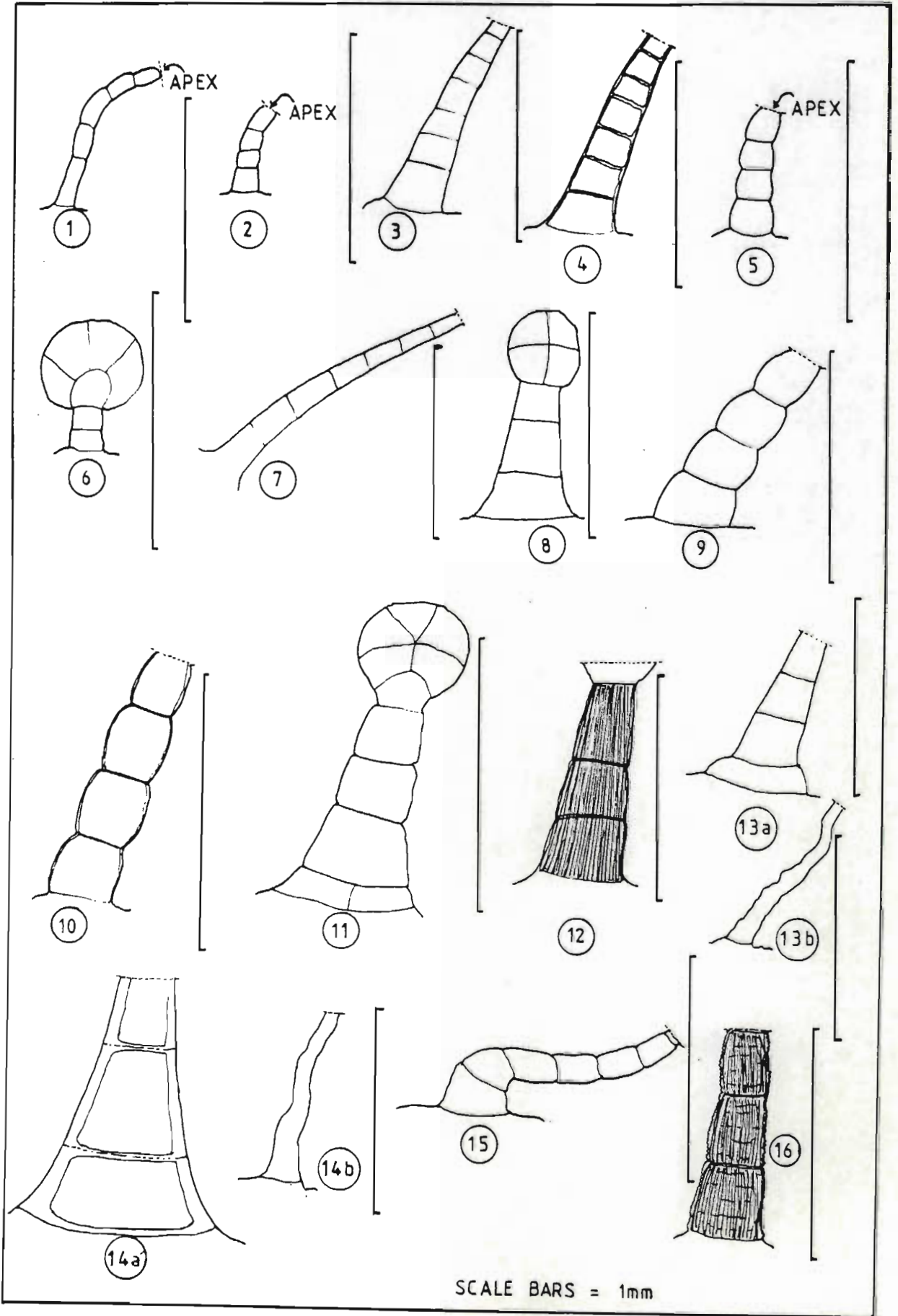
LEAF PUBESCENCE (ADAXIAL): CAULINE
 (CHAR 033)

- 01 A wispy cobwebby indumentum, scattered masses (semi villous).
- 02 Thinly white woolly-cobwebby, not in scattered masses, but +- evenly distributed; appressed on leaf; +- absent in old leaves, often persisting only at nodes and involucre bases.
- 03 Pubescent, especially along veins.
- 04 Scabrid-pubescent.
- 05 Glabrous.
- 06 Very sparsely hairy or glabrous.
- 07 Very sparsely hairy (pubescent).
- 08 Densely pubescent, equal distribution.
- 09 All glabrous or very sparsely glandular-pubescent.
- 10 Pubescent, sometimes glabrous.
- 11 Shortly pubescent.
- 12 Covered with long (pilose - c. 20 cells) and shaggy (villous) gland-tipped hairs; sometimes purple coloured at base of plant.
- 13 Coarsely glandular-pubescent.

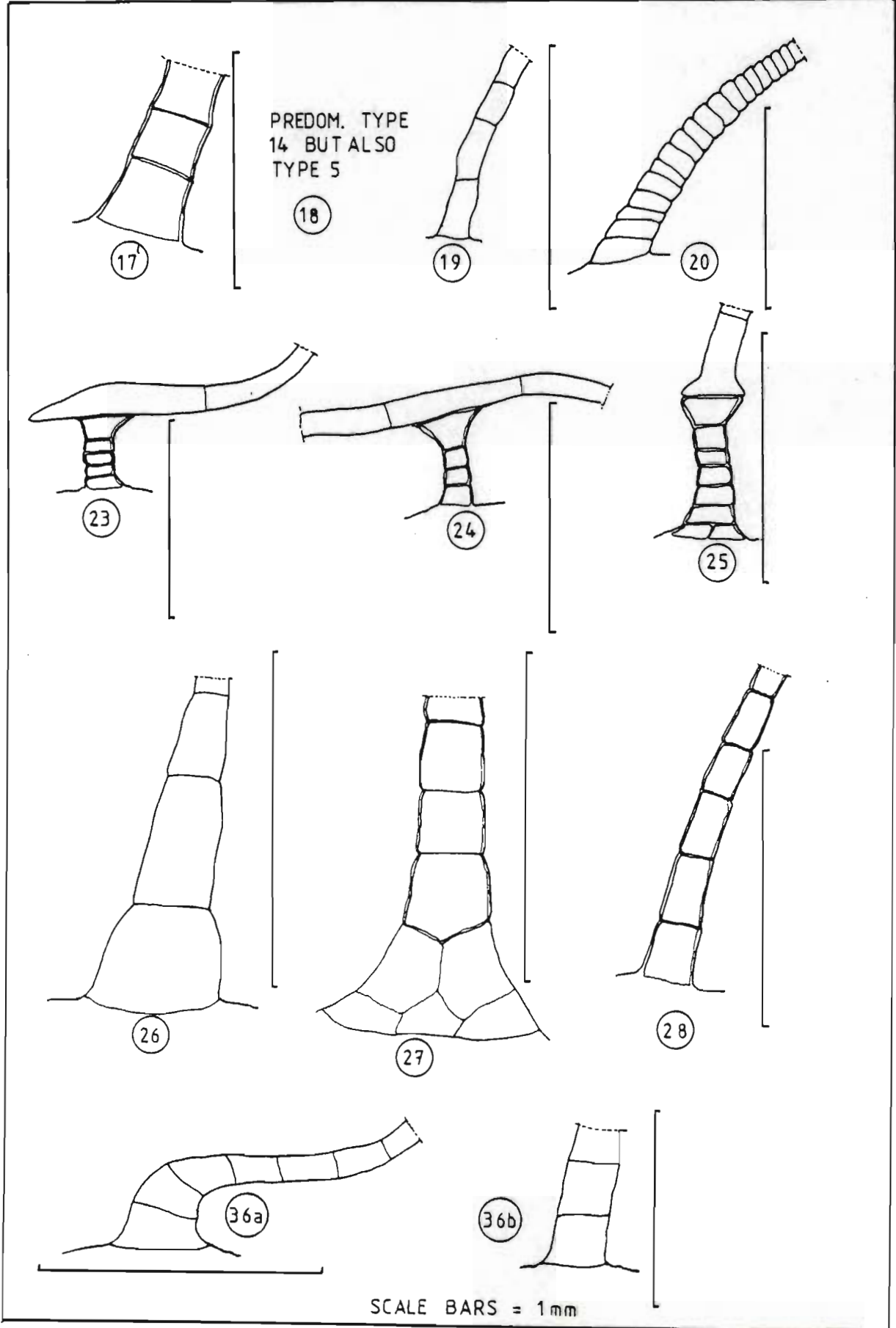
APPENDIX A continued

- 14 Densely glandular-pilose.
 - 15 Densely glandular-pubescent.
 - 16 Moderately coarsely glandular-pubescent.
 - 17 Moderately glandular-pilose.
 - 18 Moderately glandular-hispid.
 - 19 Moderately glandular-pubescent.
 - 20 Moderately and slightly harshly glandular-pubescent.
 - 21 Sparsely scabrid-pubescent with patches of very long (coiled) hairs.
 - 22 Sparsely scabrid-pubescent.
 - 23 Occasionally glabrous, usually very sparsely hairy.
 - 24 Types 05 and 17.
 - 25 Moderately pubescent, equal distribution.
 - 26 Nearly glabrous to moderately glandular-pubescent.
 - 27 Thinly glandular-pubescent - very short hairs (2-5 cells long).
 - 28 Minutely glandular-scabrid.
 - 29 Harshly glandular-pilose to glandular-pubescent.
 - 30 Sparsely glandular-pubescent.
 - 31 Sparsely pubescent.
 - 32 Moderately pubescent.
 - 33 Lightly cobwebby, usually glabrescent; persistently silky-woolly in the leaf axils.
 - 34 Enveloped in pale grey woolly tomentum; tomentum eventually peeling to a cobwebby surface.
 - 35 Very sparsely pubescent (or glabrous), a few cottony-cobwebby hairs some times at the base.
 - 36 Thinly pilose.
 - 37 Thinly pubescent.
 - 38 Thinly cobwebbed at first, soon glabrescent (margins and midribs).
 - 39 Sparsely pubescent, sometimes with traces of cobwebby wool.
 - 40 Thinly cobwebbed along veins, rest of surface glabrous.
 - 41 White-felted at first, glabrescent.
 - 42 Loosely woolly at first, soon glabrous.
 - 43 Densely grey-woolly, glabrescent.
 - 44 Loosely woolly, glabrescent.
 - 45 Thinly glandular-pubescent.
 - 46 Thinly glandular-pubescent, sometimes glabrous.
 - 47 Densely pilose.
 - 48 Sparsely but usually densely pubescent.
 - 49 Sparsely or moderately pubescent.
-

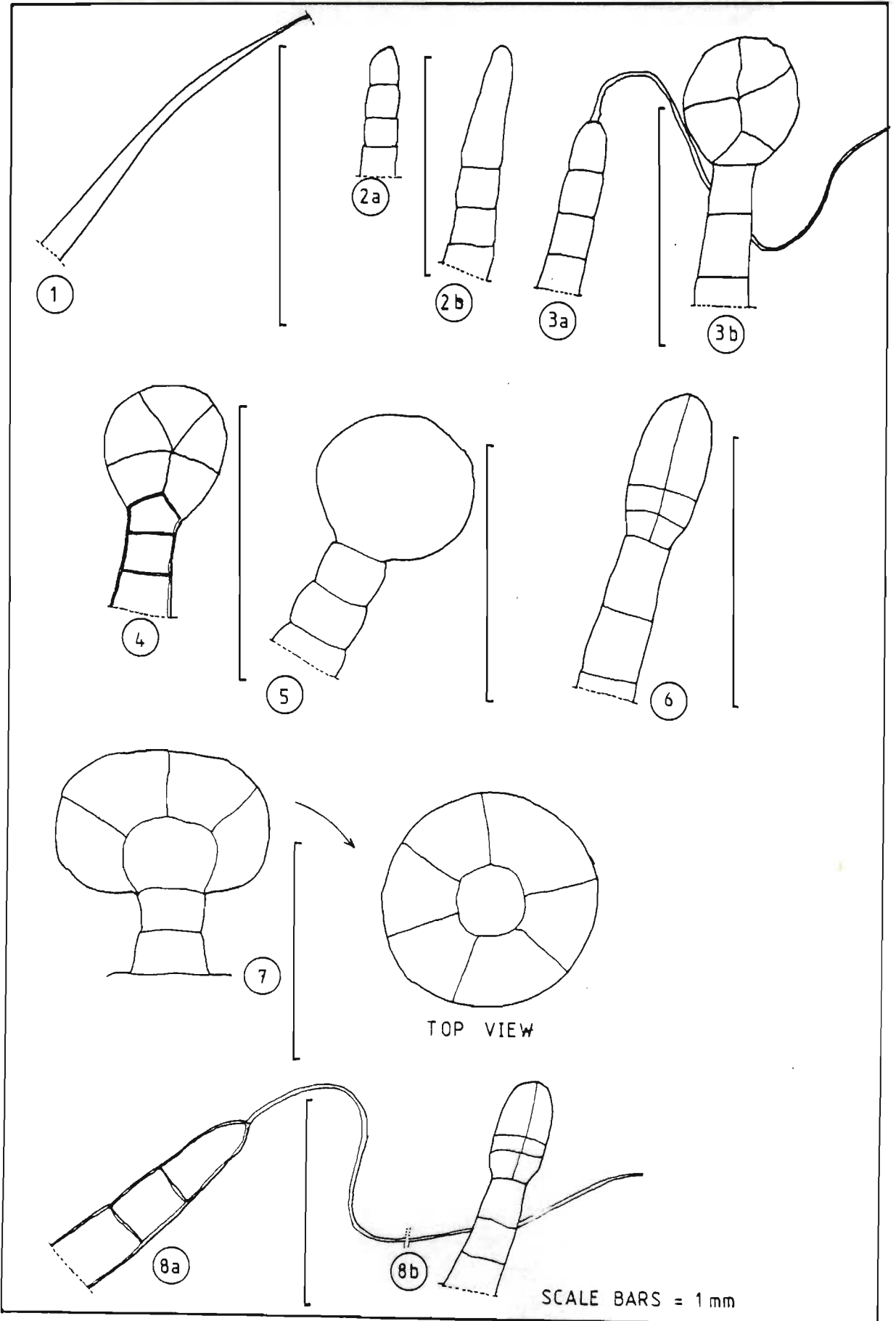
LEAF TRICHOMES: BASE (CHAR 034)



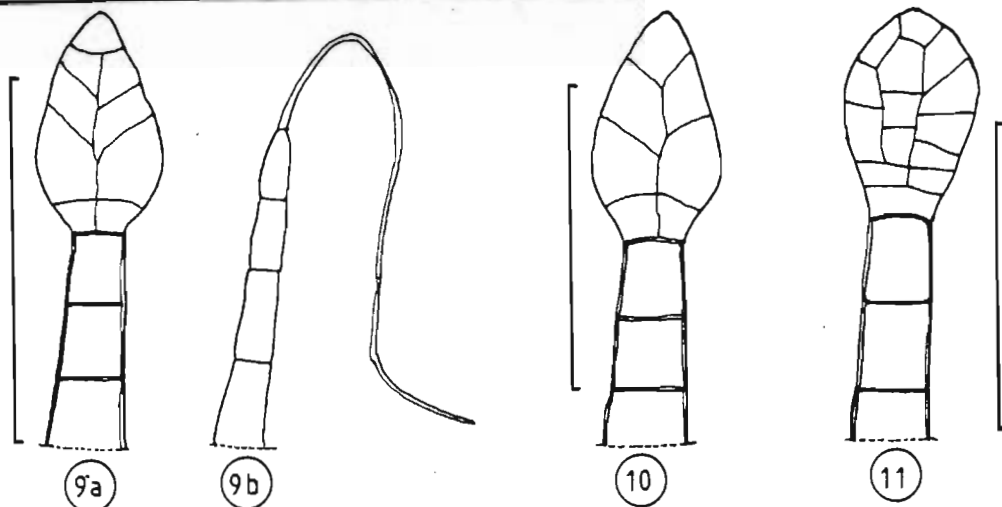
LEAF TRICHOMES: BASE (CHAR 034) - continued



LEAF TRICHOMES: APEX (CHAR 035)



LEAF TRICHOMES: APEX (CHAR 035) - continued

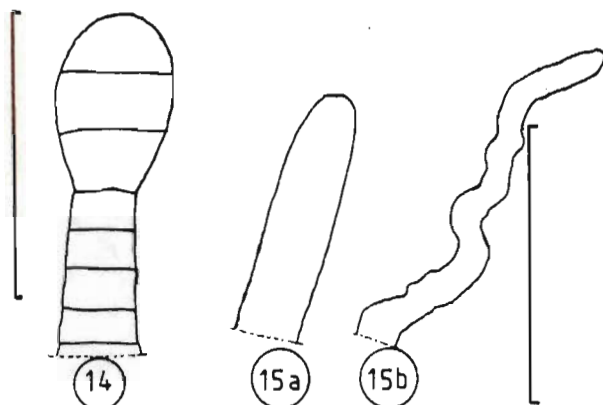


PREDOM. TYPE
9b BUT ALSO
TYPE 9a

12

PREDOM. TYPE
9a BUT ALSO
TYPE 9b

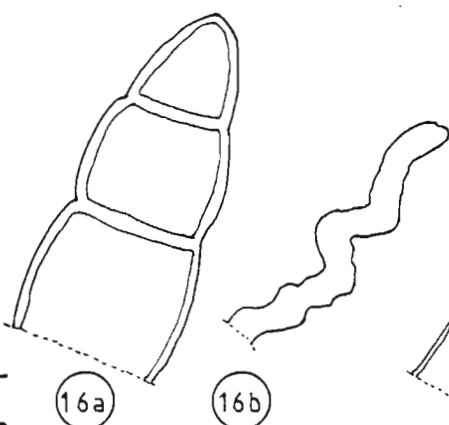
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14

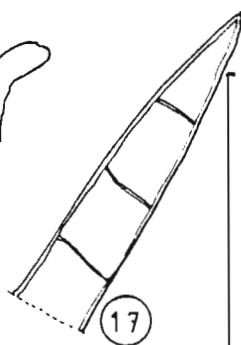
15a

15b



16a

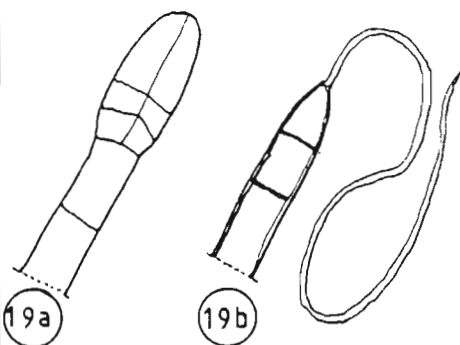
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17

PREDOM. TYPE 8b
BUT ALSO TYPE 8a

18

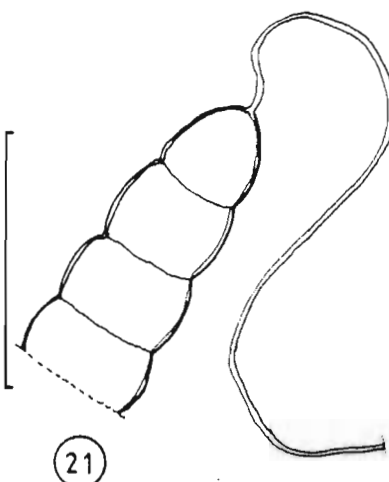


19a

19b

TYPES 4 AND
21

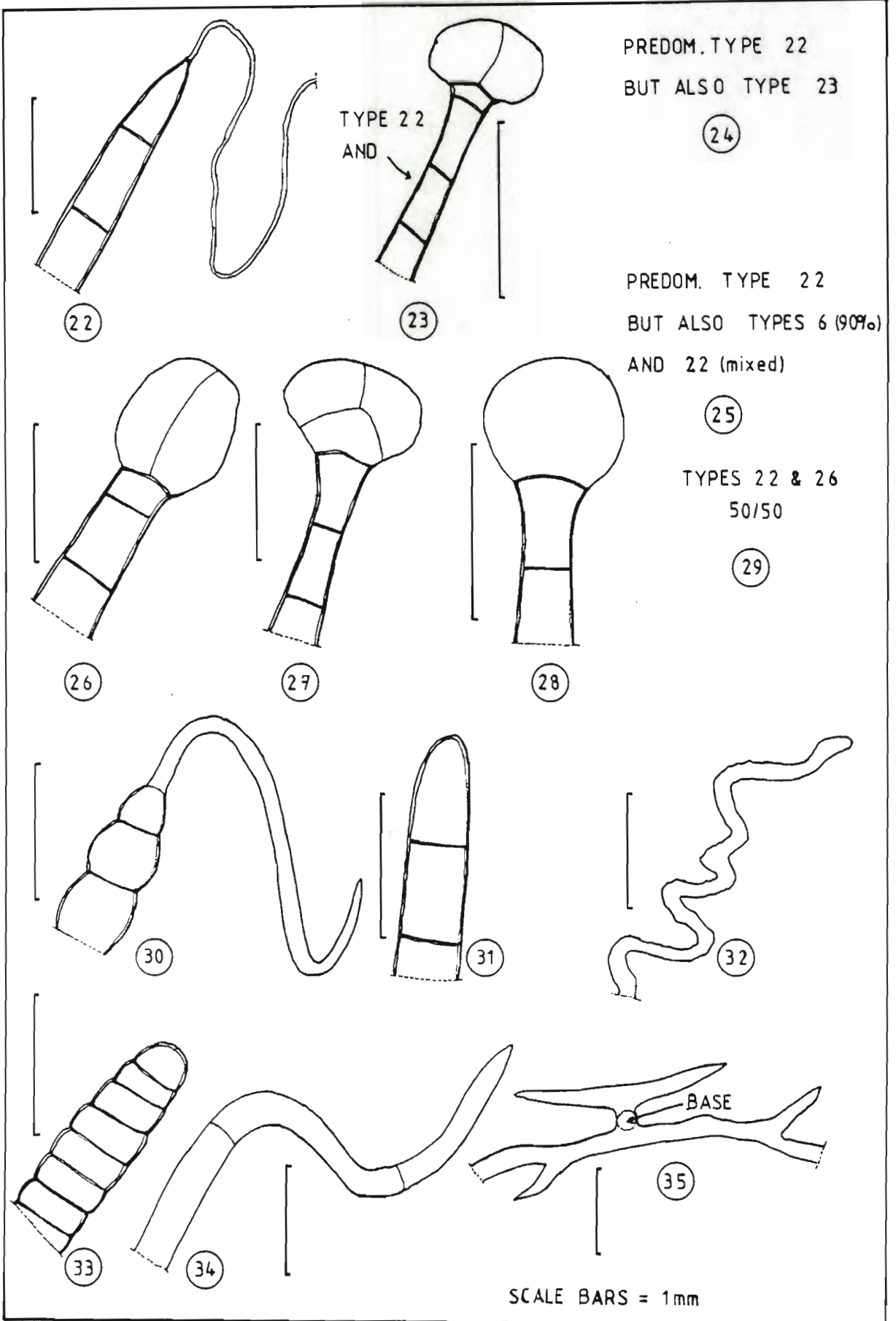
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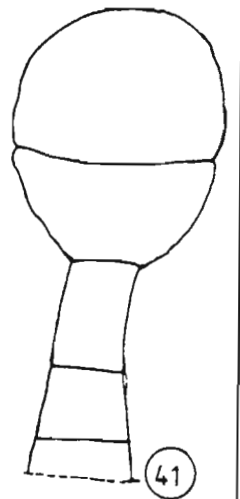
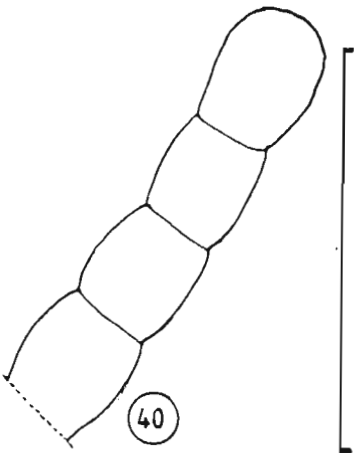
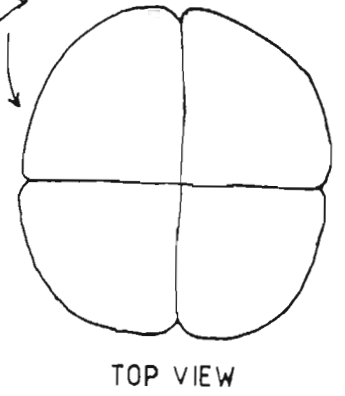
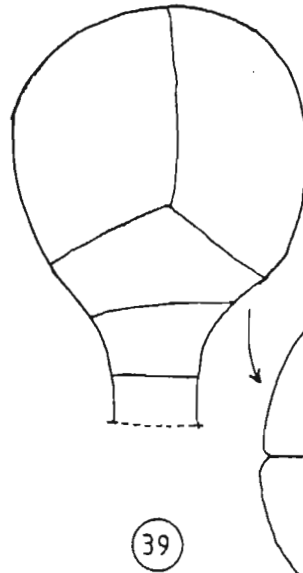
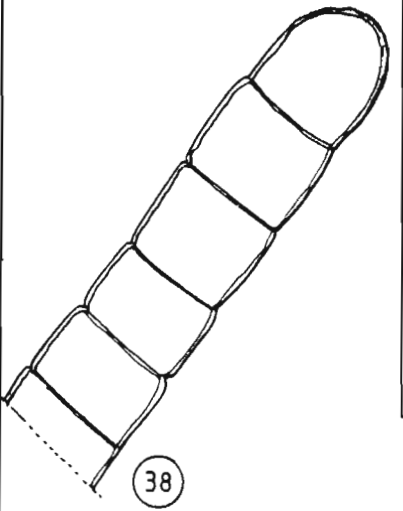
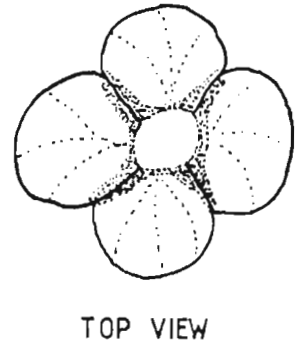
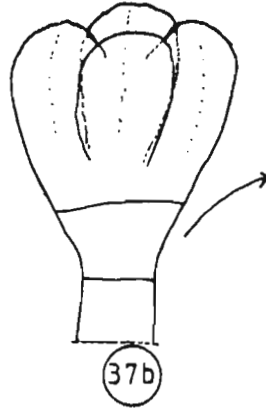
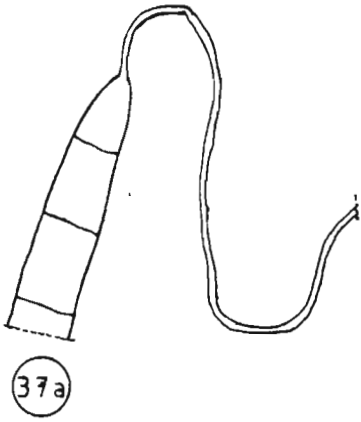
21

SCALE BARS = 1mm

LEAF TRICHOMES: APEX (CHAR 035) - continued



LEAF TRICHOMES: APEX (CHAR 035) - continued



SCALE BARS = 1mm

APPENDIX A continued

LEAF TRICHOMES: APPENDAGES (CHAR 036)

- 01 None.
 - 02 A long apical appendage (thread) - see character state 08 of CHAR 035.
 - 03 A few hairs with a long apical thread.
 - 04 Most hairs with a long apical thread.
 - 05 Some hairs with a long apical thread.
 - 06 Predominantly type 2 but also type 5.
 - 07 A moderately long, broad apical thread (c. 1/2 the width of the hair base).
 - 08 Usually a branched apical appendage - see character state 35 of CHAR 035.
-

LEAF TRICHOMES: GLANDULAR (CHAR 037)

- 01 Not glandular.
 - 02 All possess glandular apices.
 - 03 Most possess glandular apices.
 - 04 A few possess glandular apices.
 - 05 Glandular or eglandular trichomes.
 - 06 Some with a glandular apex.
 - 07 Hairs eglandular, dotted with black glands, becoming reddish and resinous.
-

FLOWERING STEM: APPEARANCE (CHAR 038)

- 01 Solitary simple, leafy in the lower part, upper part bracteate.
- 02 Thick (hollow), leafy, branching above into a large many-headed corymbose panicle.
- 03 Often simple below, often branching above; leafy (forming open corymbose panicles).
- 04 Thick (hollow), leafy, branching above into a few to many headed open corymbose panicle.
- 05 Stems up to 3 from the crown, slender, weak, simple below the inflorescence branches; leafy.
- 06 Tufts of annual stems from the rootstock, simple below, branching above into a corymbose panicle; leafy.
- 07 Often branching near the base forming inflorescence branches, leafy.
- 08 Several from the crown, often decumbent at base, then erect; simple below, forking above into the corymbose inflorescence, generally sparsely leafy.
- 09 Several from the crown, often decumbent at base, then erect, mostly simple; sparsely to closely leafy.

APPENDIX A continued

- 10 Several from the crown; slightly decumbent at the base, then erect, mostly simple, rarely forking, closely leafy.
- 11 Several from the crown, sometimes forked, glandular-pubescent, closely leafy.
- 12 Often solitary, decumbent then erect, simple and leafy in the lower half, more or less racemosely branched in the upper, pedunculoid, branches ascending, either simple or racemosely branched again to bear the capitula, leaves more or less pushed to one side of the stem.
- 13 1 or 2 lax remotely leafy flowering stems, decumbent at base, simple below, forking above into the corymbose-paniculate inflorescence, glandular-pilose, distantly leafy in the lower part, pedunculoid above.
- 14 Usually solitary, erect or decumbent, often branching low down into a corymbose panicle (spreading inflorescence) - basal rosette of leaves; a few distant reduced leaves in the lower part of the stem.
- 15 1 or several stout flowering stems from the stock, decumbent then erect, 10 mm in diameter, simple below, branching above into the corymbose inflorescence branches with small leaves degenerating upwards into large bracts, the whole compact and very leafy.
- 16 1 or a few from the crown, slightly decumbent at the base, then erect, branching low down into a few-to-several-headed corymbose panicle; lower part densely leafy, upper pedunculoid.
- 17 1 or several erect from the crown, simple below, forking above into the inflorescence branches; glandular-pubescent (upright habit).
- 18 1 or several erect from the crown (seldom exceeding 250 mm), branching low down to carry the capitula in very open corymbose panicles.
- 19 1-4 erect flowering stems from the crown, simple below, branching above into a corymbose panicle, harshly glandular-pubescent (hispid).
- 20 1 or several from the crown, simple below the inflorescence.
- 21 1 or a few from the crown, erect, branching low down or from about the middle to carry the capitula (in an open corymbose panicle).
- 22 Solitary, erect, subdichotomously branched above into a very open, few-headed corymbose panicle.
- 23 Usually solitary from the crown, braching only above into the corymbose-paniculate inflorescence, often more or less decumbent at the base and rooting there; glandular-pubescent or nearly glabrous, leafy.
- 24 Usually several, more or less erect, simple below, branching above into the corymbose inflorescence, leafy, moderately glandular-pubescent (verging on pilose).
- 25 Several from the central rootstock forming a bushy herb; branches erect or decumbent, becoming woody, sometimes rooting, leafy.
- 26 Branching vigorously from the base, the branches branching again, woody, glabrous or very sparsely hairy, rarely more densely so, leafy, often with axillary leaf tufts.
- 27 Branching near the base, some of the branches branching again, glabrous or very sparsely hairy, rarely more densely so, often with axillary leaf tufts.

APPENDIX A continued

- 28 Bushy, woody at the base, sometimes thinly cobwebby, minutely glandular, leafy throughout.
- 29 Bushy (compact and rounded), woody at the base, sometimes thinly cobwebby, leafy throughout.
- 30 Virgate (rod-like), much branched stem, branches woody and roughly pubescent; closely leafy.
- 31 Several, lateral to each rosette, simple below the inflorescence, but often forking low down and then carrying the capitula in a spreading corymbose-panicle.
- 32 Several, lateral to the rosette, hollow, up to 60 mm in diameter at the base, often decumbent then erect; simple below, forking above into the compound inflorescence, or forking near the base; distantly leafy.
- 33 Several, lateral to the rosette, decumbent then erect, hollow, up to 6 mm in diameter, simple below, forking above into the compound inflorescence, more or less remotely leafy.
- 34 Several, lateral to the rosette, decumbent then erect, hollow, simple below, forking above into the compound inflorescence, remotely leafy.
- 35 Several from the crown, simple or branching from near the base, remotely leafy.
- 36 Branching from or near the base, branches ascending, leafy.
- 37 Several from each crown, usually simple below the inflorescence, remotely leafy.
- 38 1 or several from each crown, lateral to the rosettes, simple below the inflorescence, leafy.
- 39 Usually several, from one to several leaf rosettes, lateral to the rosettes, simple below the inflorescence, leafy.
- 40 Solitary, simple below the inflorescence branches, remotely leafy.
- 41 Solitary or several from the crown, usually simple below the inflorescence (narrow, crowded, erect and rather stiff stem leaves).
- 42 Solitary, simple below the inflorescence, densely leafy.
- 43 Simple or rarely branching from the crown, leafy only at and slightly above the base, bracteate upwards, leaves spreading flat on the ground or erect.
- 44 Solitary, simple or rarely branching from the crown, leafy in the lower part, bracteate upwards.
- 45 1 or several from the crown, simple below the inflorescence, leafy in the lower part.
- 46 Usually one from each leaf rosette, simple below the inflorescence, stout, leafy.
- 47 Solitary, simple below the inflorescence, leafy.
- 48 Solitary, simple or sparingly forked above into the compound inflorescence; crown fibrous from old leaf bases; leafy.
- 49 Solitary, simple or forking into inflorescence branches, leafy in the lower part, with few, distant, reduced leaves upwards.
- 50 Solitary, simple or sometimes forking once near the base, forking above into the compound inflorescence, densely leafy.
- 51 Usually one, sometimes a few from the crown; generally simple below the inflorescence branches; occasionally forking near the base; leafy near the base, though characteristically nude at the very base; nude

APPENDIX A continued

- above; fleshy.
- 52 1 or several from the crown, stout (c. 10 mm diameter) at the base and becoming woody there; simple below the inflorescence branches or rarely forking near the base; densely leafy near the base, though characteristically nude at the very base; nude above; fleshy, sometimes glaucous.
 - 53 1 or several from the crown, simple below the inflorescence branches, leafy mainly in the lower part, leaves more distant upwards.
 - 54 Several, simple below the inflorescence, slender, woody, closely leafy, becoming bracteate upwards.
 - 55 Usually solitary, simple below the inflorescence branches, leafy mainly in the lower part, upper leaves passing abruptly into inflorescence bracts.
 - 56 Solitary, simple below the inflorescence branches, leafy mainly in the lower part.
 - 57 Usually solitary, simple below the inflorescence branches, leafy.
 - 58 Solitary or occasionally two from a crown, usually simple below the inflorescence branches, occasionally with one branch near ground level, leafy throughout.
 - 59 Solitary, either simple below the inflorescence branches or branching from near the base, leafy.
 - 60 Solitary, simple below the inflorescence, densely leafy in the upper part.
 - 61 Several from the stem, stiffly erect (c. 4 mm in diameter), simple below the inflorescence branches; leafy in the upper part.
 - 62 Solitary, simple below the inflorescence branches, lower part woody, up to 10 mm in diameter; mostly leafless, leafy above into inflorescence branches.
 - 63 Clumps of erect stems, simple below the inflorescence branches, densely leafy.
 - 64 Well branched, thick, succulent, branchlets closely leafy.
 - 65 Much-branched; succulent, scandent, all parts glabrous, old stems nude, rough with leaf scars; branchlets closely leafy.
 - 66 Much-branched, thick (up to c. 10 mm in diameter), succulent, scandent, all parts glabrous, old stems nude, branchlets leafy, stems oozing latex when cut.
 - 67 Flowering stems sent up (erect) from a creeping stock; glabrous, succulent, glaucous; branching mainly near the base and closely leafy there; flowering stems 1 to several from the upper leaf axils; long, bracteate (sparsely).
 - 68 Branching, somewhat succulent, scandent, stems up to 10 mm in diameter; weak, leafy, all parts glabrous.
 - 69 Slender, voluble, herbaceous and twining; glabrous, more or less succulent, lateral branchlets nude or with a few reduced leaves.
 - 70 Much branched (slender scrambler), internodes markedly zigzag.
 - 71 Much branched (herbaceous) twiner, many lateral branchlets; branchlets leafy.
 - 72 Slender, voluble, herbaceous and twining, somewhat succulent; short side branches with reduced leaves.
 - 73 Branching (herbaceous) twiner, becoming woody (stems thinly cobwebby - more or less glabrescent), leafy.

APPENDIX A continued

- 74 Shrubby, branches long, slender, stiff, rodlike, prostrate, decumbent or ascending, young branchlets closely leafy (congested compound inflorescence).
- 75 Spreading shrub, branches long, slender, erect, ascending or pendulous, branchlets closely leafy.
- 76 Twiggy, compact, branches erect or prostrate (and then rooting), densely leafy.
- 77 Flowering stems from a succulent, prostrate stem (forming mats), rooting, leafy, sharply wing-angled from the base of each leaf; flowering stems (up to c. 150 mm in diameter), nearly nude, erect, peduncles terminating the branches.
- 78 Solitary, very long (up to c. 200 mm), nude peduncles, arising from the upper leaf axils; from a bushy herb; stems woody, leafy, leaves crowded.
-

FLOWERING STEM: PUBESCENCE (CHAR 039)

- 01 Wispy, cobwebby vestiture, especially in the leaf and bract axils.
- 02 Thinly white, woolly-cobwebby at first, often persisting only at the nodes and at the base of the involucre; appears thinly matted (under X10).
- 03 Densely pubescent and glandular.
- 04 Cobwebby or glandular.
- 05 Glabrous or very sparsely hairy; more hairy at the nodes and leaf axils.
- 06 Thinly to moderately pubescent (hairy) and glandular.
- 07 Densely glandular-pilose.
- 08 Glabrous or sparsely glandular-pubescent, viscid.
- 09 Nearly glabrous, to softly glandular-pilose.
- 10 Covered with long (pilose - c. 20 cells long) and shaggy (villos) gland-tipped hairs.
- 11 Coarsely glandular-pubescent (moderate frequency).
- 12 Glandular-pilose (not dense).
- 13 Harshly glandular-pubescent.
- 14 Moderately glandular-pubescent.
- 15 Thinly glandular-pilose.
- 16 Glabrous except for very short, sparse, glandular-pubescence on the inflorescence branches (vestigial).
- 17 Sparsely glandular-pubescent or nearly glabrous.
- 18 Glabrous.
- 19 Glabrous or very sparsely hairy, rarely more densely so.
- 20 Sometimes thinly cobwebby.
- 21 Thinly cobwebby (and minutely glandular).
- 22 Moderately scabrid-pubescent.
- 23 Very sparsely hairy.
- 24 Moderately pubescent.
- 25 Predominantly type 24 but also type 14.
- 26 Nearly glabrous to thinly glandular-pubescent.
- 27 Thinly glandular-pubescent.
- 28 Moderately glandular-hispid.

APPENDIX A continued

- 29 White glandular-pilose.
 - 30 Thinly pilose with long white jointed hairs.
 - 31 Thinly woolly-cobwebby, mostly in the lower part and in the leaf and bract axils.
 - 32 Glabrous or sometimes lightly cobwebby, glabrescent, or thinly pilose.
 - 33 Loosely cottony or woolly.
 - 34 Thinly hairy.
 - 35 Loosely woolly, glabrescent.
 - 36 Enveloped in grey woolly tomentum; tomentum often peeling to a cobwebby surface.
 - 37 Glabrous or with sparse cobwebby hairs in the leaf axils.
 - 38 Glabrous or woolly-cobwebby, glabrescent.
 - 39 Often lightly cobwebby at first, glabrescent, sometimes minutely puberulous.
 - 40 Glabrous except for the woolly crown and wool hidden in the leaf axils.
 - 41 Cobwebby in the upper regions.
 - 42 White-felted.
 - 43 White-felted, glabrescent.
 - 44 Glabrous or thinly and minutely pubescent.
 - 45 Thinly cobwebby, more or less glabrescent.
 - 46 Loosely woolly at first, soon glabrous.
 - 47 Grey woolly, glabrescent, often densely glandular-pilose.
 - 48 Glabrous or loosely woolly at first, sometimes glandular-pilose.
-

FLOWERING STEM: GLANDULAR (CHAR 040)

- 1 Tips of hairs glandular.
 - 2 Not glandular.
 - 3 May be glandular-pubescent, viscid.
 - 4 Tips of some hairs glandular.
 - 5 Sometimes glandular-pilose.
-

PEDUNCLE APPEARANCE (CHAR 041)

- 01 Long (c. 80 mm), cobwebby indumentum (sometimes bearing a few bracts).
- 02 Long (c. 80-120 mm), cobwebby indumentum (bracteate).
- 03 Relatively short (c. 8 mm), densely pubescent and glandular.
- 04 10-20 mm long, forming a distinct cymose-corymbose arrangement, densely glandular-pubescent.
- 05 Variable in length (10-40 mm), very sparsely hairy, a few bracts; forming corymbs.
- 06 Variable in length (5-30 mm), densely glandular-pubescent.
- 07 Peduncles tending to spread divaricately (c. 10 mm or less), densely glandular-pilose; a few bracts.
- 08 Peduncles tending to spread divaricately (c. 15-30 mm), glabrous or sparsely glandular-pubescent, viscid.

APPENDIX A continued

- 09 Nearly glabrous to softly glandular-pilose (c. 15-40 mm),.
- 10 Densely glandular-pilose (c. 10-40 mm).
- 11 Densely pilose and villous (c. 5-20 mm).
- 12 Densely glandular-pubescent (c. 10-40 mm), several small (c. 3,5 mm) bracts; peduncles from the upper leaf axils.
- 13 Glandular-pilose (c. 40-120 mm), 1-3 small bracts (c. 1,5 mm); subtended bdy and inflorescence bract.
- 14 Densely glandular-pubescent (c. 20-100 mm), many large (c. 8 mm) bracts up the peduncles.
- 15 Densely glandular-pubescent (c. 40-100 mm), 1-3 small bracts (c. 3 mm), subtended by an inflorescence bract.
- 16 Moderately and coarsely glandular-pubescent (c. 10-40 mm), 1-3 small bracts (c. 3 mm), base subtended by an inflorescence bract.
- 17 Moderately glandular-pubescent (c. 10-100 mm), 1-2 (or absent) bracts up the peduncles.
- 18 Densely glandular-pubescent (hispid) (c. 10-30 mm), 1-3 bracts up the peduncles.
- 19 Densely glandular-pubescent (c. 5-40 mm), 1-2 (or absent) bracts.
- 20 Sparsely glandular-pubescent (c. 10-40 mm), 1-2 (or absent) bracts.
- 21 Moderately glandular-pubescent (c. 10-30 mm), occasional bract up the peduncles.
- 22 Sparsely glandular-pubescent or glabrous (c. 10-30 mm), 1-2 bracts (or absent).
- 23 Sparsely pubescent to glabrous, 0-3 small bracts (c. 10-60 mm)
- 24 Sparsely pubescent to glabrous, usually with many (c. 8-10) bracts, peduncles usually long (c. 50-70 mm).
- 25 Sparsely pubescent, bracteate and short (c. 10 mm).
- 26 Short (c. 10 mm), sparse to dense cobwebby indumentum, bracteate.
- 27 Sparse to densely cobwebby indumentum, bracteate (c. 20-30 mm).
- 28 Moderately to densely scabrid-pubescent (c. 20-50 mm).
- 29 Moderately pubescent, a few inflorescence bracts (c. 3), usually long (c. 30 mm or longer).
- 30 Sparsely pubescent, variable length (c. 25-100 mm), moderately bracteate (c. 6).
- 31 Moderately glandular hispid, sparsely bracteate (c. 20-40 mm).
- 32 Moderately pubescent and glandular with several (c. 6) long (c. 10 mm) bracts, scabrid.
- 33 Densely glandular-pilose on relatively long (c. 40-100mm) bracteate (1-3 bracts) (c. 5-15 mm) peduncles.
- 34 Thinly pilose to glabrous, 0-3 bracts.
- 35 Thinly cottony or woolly or glabrous, long (c. 30-100 mm), sparsely bracteate.
- 36 Glabrous, moderately long (c. 30-80 mm), sparsely bracteate.
- 37 Loosely woolly, glabrescent (c. 20-50 mm), sparsely bracteate.
- 38 Enveloped in pale gray woolly tomentum; tomentum eventually peeling to a cobwebby surface, very variable in length (c. 20-100 mm), 0-3 bracts.
- 39 Glabrous, very variable (c. 30-200 mm), 0-5 bracts (c. 25 mm).
- 40 Thinly pilose, sparsely bracteate.
- 41 Glabrous or woolly-cobwebby, glabrescent, sparsely bracteate.
- 42 Often lightly cobwebby at first glabrescent, sometimes minutely

APPENDIX A continued

- puberulous, bracteate (c. 3-6).
- 43 Glabrous, sparsely bracteate (c. 1-3) (c. 30 mm).
- 44 Glabrous, sparsely bracteate (0-3) (c. 10-30 mm).
- 45 Cobwebby, sparsely bracteate (0-3) (c. 10 mm).
- 46 White-felted (c. 10-30 mm), sparsely bracteate (0-3).
- 47 White-felted, long (c. 150 mm), bracteate (2-4).
- 48 Glabrous (c. 10-30 mm), bracteate (c. 3-7).
- 49 Glabrous, long (c. 50-100 mm), bracteate (bracts c. 5x3 mm), bracts succulent.
- 50 Glabrous, sparsely bracteate (1-3) (c. 10 mm).
- 51 Glabrous, sparsely bracteate (0-2) (c. 5-10 mm).
- 52 Glabrous, nude or with 1-2 large fleshy bracts (c. 30-40 mm).
- 53 Thinly cobwebby, more or less glabrescent; nude, short (c. 5 mm or less).
- 54 Loosely woolly at first, soon glabrous, long (c. 50 mm), bracteate (c. 6 or more).
- 55 Densely glandular-pubescent (c. 20-50 mm), 0-4 bracts.
- 56 Moderately glandular-pilose, 0-3 bracts (c. 10-30 mm).
- 57 Glabrous (up to 150 mm), nearly nude (sparsely bracteate).
- 58 Glabrous (up to 200 mm), nude, in upper leaf axils.
- 59 Glabrous, moderately long (c. 30-80 mm), bracteate (c. 1-5).
-

LEAF STOMATA (CHAR 042)

- 1 Anomocytic - variable number of surrounding epidermal cells (both surfaces).
- 2 Anomocytic - epidermal cells in a tetracytic form (both surfaces).
- 3 Generally anomocytic - epidermal cells in a tetracytic form (both surfaces).
- 4 Anomocytic - on abaxial surface only.
- 7 Predominantly type 1 but also type 2.
- 8 Predominantly type 4 but also type 1.
-

INFLORESCENCE BRACTS (CHAR 043)

- 01 Several, sessile, on the upper inflorescence stalk and subtending the peduncles and up them.
- 02 Subtending the cymose-corymbose clusters and a few up the peduncles, the lower longer than the upper, densely glandular-pubescent.
- 03 Subtending the corymbose clusters and a few up the peduncles; the lower longer than the upper.
- 04 Subtending the corymbose clusters and a few up the peduncles, the lower longer than the upper; densely glandular-pubescent.
- 05 Subtending the corymbose clusters, occasional one up the peduncles, glandular-pubescent, viscid.
- 06 Subtending the more or less racemously arranged capitula and a few up the peduncles; the lower longer than the upper; all densely glandular-pubescent.
- 07 Subtending the racemose panicles and 2-3 up the peduncles, the lower

APPENDIX A continued

- longer than the upper; all densely glandular-pilose and villous.
- 08 Usually subtending the corymbose and paniculate arranged capitula at the base of the peduncles.
 - 09 Subtending the corymbose clusters, an occasional one up the peduncles; glandular-pilose.
 - 10 Subtending the corymbose arranged capitula and several large (c. 8 mm) bracts up the peduncles.
 - 11 Subtending the corymbose arranged capitula (peduncle base).
 - 12 Subtending the corymbose arranged capitula, glabrous.
 - 13 Subtending the corymbose clusters; an occasional one up the peduncles; densely glandular-pubescent.
 - 14 Subtending the corymbose clusters; an occasional one up the peduncles; moderately glandular-pubescent.
 - 15 Subtending the peduncles and several (c. 8) up the peduncles.
 - 16 Subtending the corymbose-paniculate arranged capitula and a few (c. 3) up the long peduncles.
 - 17 Subtending the few capitula and 1 or 2 long (c. 10 mm) up the peduncles.
 - 18 Subtending the few capitula and 1 or 2 short (c. 5 mm) up the peduncles.
 - 19 Subtending the peduncles of the few corymbose-paniculately arranged capitula and several (c. 6-8) up the peduncles (c. 5 mm).
 - 20 Subtending the corymbose-paniculately arranged capitula and 1-2 up the peduncles.
 - 21 Subtending the (peduncles of) corymbose-paniculately arranged capitula, 0-3 up the peduncles.
 - 22 Subtending the (peduncles of) corymbose-paniculately arranged capitula, 3-6 up the peduncles.
 - 23 Subtending the corymbose capitula and 0-3 up the peduncles.
 - 24 Subtending the corymbose arranged capitula, 0-3 up the peduncles, loosely woolly, glabrescent.
 - 25 Subtending the peduncles of the corymbose-paniculately arranged capitula; enveloped in grey woolly tomentum which eventually peels to a cobwebby surface.
 - 26 Subtending the corymbose arranged capitula, 0-3 (c. 25 mm), up the peduncles, glabrous.
 - 27 Subtending the corymbose arranged capitula, thinly pilose.
 - 28 Subtending the congested corymbose-paniculately arranged capitula and several (4-6) up the peduncles (scaly appearance).
 - 29 Subtending the peduncles of the corymbose arranged capitula (2-4) up the peduncles; white-felted.
 - 30 Subtending the peduncles of the few capitula and several up the peduncles; glabrous, succulent.
 - 31 Subtending the base of the inflorescence branches (leafy) but much reduced at the peduncle base.
 - 32 Subtending the inflorescence branches, 0-2 up the peduncles.
 - 33 Subtending the bases of the peduncles (only).
 - 34 Lower = reduced leaves; upper are bracteate.
 - 35 Subtending the peduncles of the 1-2 capitula and 1-2 up the peduncles.
 - 36 Subtending the peduncles of the few corymbose-paniculately arranged

APPENDIX A continued

- capitula and 1-5 up the peduncles.
 37 Subtending the peduncles of the terminal or corymbosely arranged capitula and 1-5 up the peduncles; glabrous.
 99 Absent (lacking).
-

CAPITULA: LENGTH (CHAR 044)

- 1 5-7 mm
 - 2 8-10 mm
 - 3 11-13 mm
 - 4 14-15 mm
 - 5 16-18 mm
 - 6 19-22 mm
 - 7 23 mm and longer
-

CAPITULA: DIAMETER (CHAR 045)

- 1 3 mm or less.
 - 2 4-7 mm
 - 3 8-10 mm
 - 4 11-12 mm
 - 5 13-18 mm
 - 6 20-25 mm
-

CAPITULA: RADIATE/DISCOID (CHAR 046)

- 1 Radiate.
 - 2 Discoid.
 - 3 Radiate or discoid.
 - 4 Radiate or rarely discoid.
 - 5 Minutely and inconspicuously radiate.
 - 6 Discoid, rarely radiate.
-

CAPITULA: HOMO/HETEROGAMOUS (CHAR 047)

- 1 Homogamous.
 - 2 Heterogamous.
 - 3 Predominantly heterogamous, otherwise homogamous.
 - 4 Heterogamous or homogamous.
-

CAPITULA: ARRANGEMENT (CHAR 048)

- 01 Corymbosely or racemosely arranged; few to many.
- 02 Corymbosely arranged.

APPENDIX A continued

- 03 Very many in congested cymose-corymbose clusters, borne in an open corymbose panicle.
- 04 Few to many, corymbosely arranged.
- 06 Many, very loosely arranged in a large open corymbose panicle, peduncles tending to spread divaricately.
- 07 Few to many in spreading corymbose panicles.
- 08 Corymbosely or sometimes subracemosely arranged.
- 09 More or less racemosely arranged.
- 10 Arranged in a congested panicle.
- 11 Solitary on long minutely bracteate peduncles forming a few-headed corymbose panicle.
- 12 Arranged in an open corymbose panicle - up to 12.
- 13 Tending to be in a thyrsoïd-racemose arrangement rather than a corymbose-paniculate arrangement.
- 14 Many, in a leafy, compact, corymbose panicle; often on long peduncles (c. 80 mm).
- 15 Many, corymbose-paniculately arranged.
- 16 Few to many in corymbose panicles.
- 17 3-5 corymbosely arranged.
- 18 Few-headed, very open corymbose panicle.
- 19 Few, corymbosely arranged; on sparsely bracteate peduncles.
- 20 Few to many on long bracteate peduncles; arranged in open corymbose panicles.
- 21 Many, on short (c. 10 mm) bracteate peduncles; arranged in spreading corymbose panicles.
- 22 Several to many on moderately long (c. 20-30 mm) bracteate peduncles; arranged in spreading corymbose panicles.
- 23 Types 5 and 13 occur.
- 24 Few on long glandular-pilose peduncles, corymbose-paniculately arranged.
- 25 Few on sparsely bracteate peduncles; arranged in a loose corymbose panicle.
- 26 Few on long bracteate peduncles, corymbose-paniculately arranged.
- 27 Several, corymbose-paniculately arranged.
- 28 Solitary or several, corymbosely arranged on long (c. 70 mm) bracteate peduncles.
- 29 3-10 corymbosely arranged.
- 30 About 12 corymbose-paniculately arranged, on long peduncles.
- 31 Up to c. 35, corymbose-paniculately arranged, on long bracteate peduncles.
- 32 Up to c. 40, corymbose-paniculately arranged, on long, sparsely bracteate peduncles.
- 33 Solitary or up to 10 corymbosely arranged.
- 34 Up to c. 8, corymbose-paniculately arranged.
- 35 Solitary or 2-4 on long nearly nude peduncles, corymbosely arranged.
- 36 Solitary or up to 4, corymbosely arranged.
- 37 Up to c. 20, on long sparsely bracteate peduncles, corymbose-paniculately arranged.
- 38 Many in a flat-topped corymbose panicle.
- 39 Solitary or several, terminal, corymbosely arranged.
- 40 Few to many, corymbose-paniculately arranged.

APPENDIX A continued

- 41 Many on sparsely bracteate peduncles, arranged in sometimes very large, well-branched corymbose panicles.
- 42 Many, arranged in a terminal congested corymbose panicle.
- 43 Many on short (c. 10-30 mm), sparsely bracteate (0-3) peduncles, arranged in a spreading corymbose panicle.
- 44 Many in a large, leafy, spreading corymbose panicle, composed of many rather congested clusters.
- 45 Many on short (c. 10-30 mm) sparsely bracteate (0-3) peduncles; in congested corymbose panicles, these in turn sometimes corymbosely arranged.
- 46 Solitary or up to 4, corymbosely arranged on long bracteate, white-felted terminal peduncles.
- 47 Arranged in small corymbose clusters, these often in divaricate panicles at the branch tips.
- 48 Several, in congested corymbose panicles at the branch tips.
- 49 Few, corymbosely arranged on long bracteate, glabrous, terminal peduncles.
- 50 Many in congested corymbs, arranged in sometimes very large corymbose panicles, terminating the branches.
- 51 Many in congested compound corymbose panicles, terminating short lateral branchlets.
- 52 Many in divaricate corymbose panicles terminating the branchlets on short axillary peduncles.
- 53 Many subumbellately or corymbosely arranged at the tips of leafy lateral branchlets.
- 54 Solitary or few in very open corymbs, terminating short branches with reduced leaves.
- 55 In small axillary corymbose panicles, shorter than the subtending leaf.
- 56 In open, spreading corymbose panicles, terminating the branches.
- 57 Solitary or up to 3, corymbosely arranged at the branch tips.
- 58 Solitary or paired on long (c. 150 mm) peduncles terminating the branches.
- 59 Solitary on long (c. 200 mm) nude peduncles (arising from upper leaf axils).
- 60 Few, solitary on long (c. 200 mm) nearly nude peduncles.
- 61 Few on long nude peduncles, corymbose-paniculately arranged.
- 62 Few, corymbose-paniculately arranged.
- 63 Few, in open corymbose panicles.

INVOLUCRE SHAPE (CHAR 049)

- 01 Campanulate.
- 02 Turbinate.
- 03 Turbinate-campanulate.
- 04 Narrowly campanulate.
- 05 More or less turbinate.
- 06 Broadly campanulate.

APPENDIX A continued

INVOLUCRAL BRACTS: NUMBER (CHAR 050)

- 1 5-6 bracts
 - 2 7-8 bracts
 - 3 10-14 bracts
 - 4 16-18 bracts
 - 5 20-22 bracts
 - 6 26-32 bracts
-

INVOLUCRAL BRACTS: LENGTH (CHAR 051)

- 1 3 mm or less
 - 2 4-5 mm
 - 3 6-8 mm
 - 4 9-10 mm
 - 5 11-13 mm
 - 6 14-15 mm
 - 7 16 mm or longer
-

INVOLUCRAL BRACTS: SHAPE (CHAR 052)

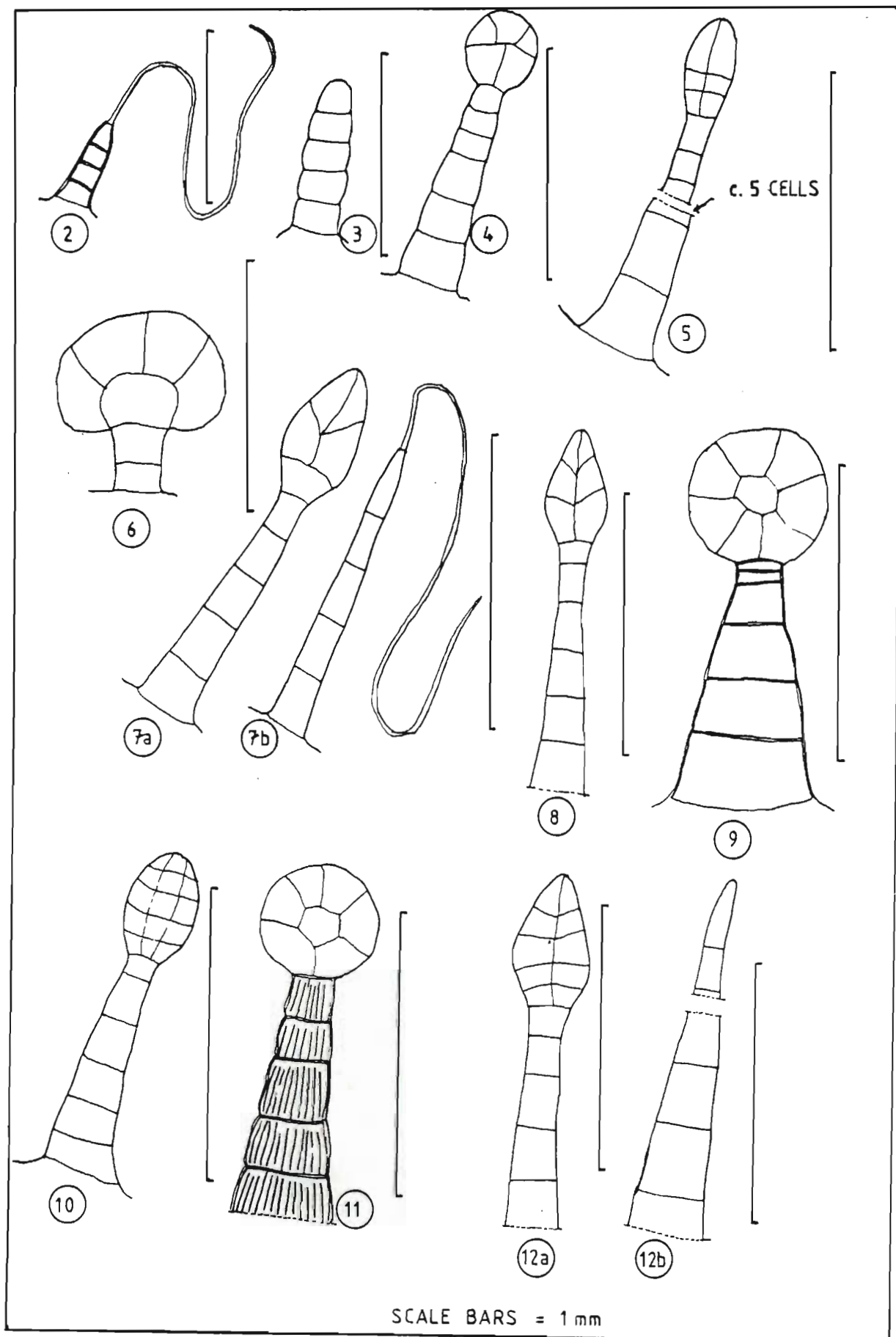
- 01 Lanceolate with broad thin margins, double keel, body of bract thick.
 - 02 Lanceolate, double keel, body of bract moderately thick.
 - 03 Oblong, single keel, keel thickened, apex acute.
 - 04 Oblong, single keel, apex acute.
 - 05 Lanceolate, single keel, apex acuminate.
 - 06 Lanceolate, single keel, keel thickened, apex acute.
 - 07 Oblong, single keel, apex obtuse.
 - 08 Lanceolate, single keel, keel thickened, apex acuminate.
 - 09 Lanceolate, single keel, apex acute.
 - 10 Oblong, broad (c. 15 mm), flat, apex acute.
 - 11 Oblong, flat, apex acute c. 10 mm wide.
 - 12 Oblong, flat, slightly keeled base, apex acute, c. 4-6 mm wide.
 - 13 Oblong, flat, apex acute, c. 4-6 mm wide.
 - 14 Oblong, flat, swollen at the base, apex acute, c. 1 mm wide.
 - 15 Lanceolate, single keel, apex acute, swollen at the base.
 - 16 Oblong, single keel, apex acute, swollen at the base.
-

INVOLUCRAL BRACTS: PUBESCENCE (CHAR 053)

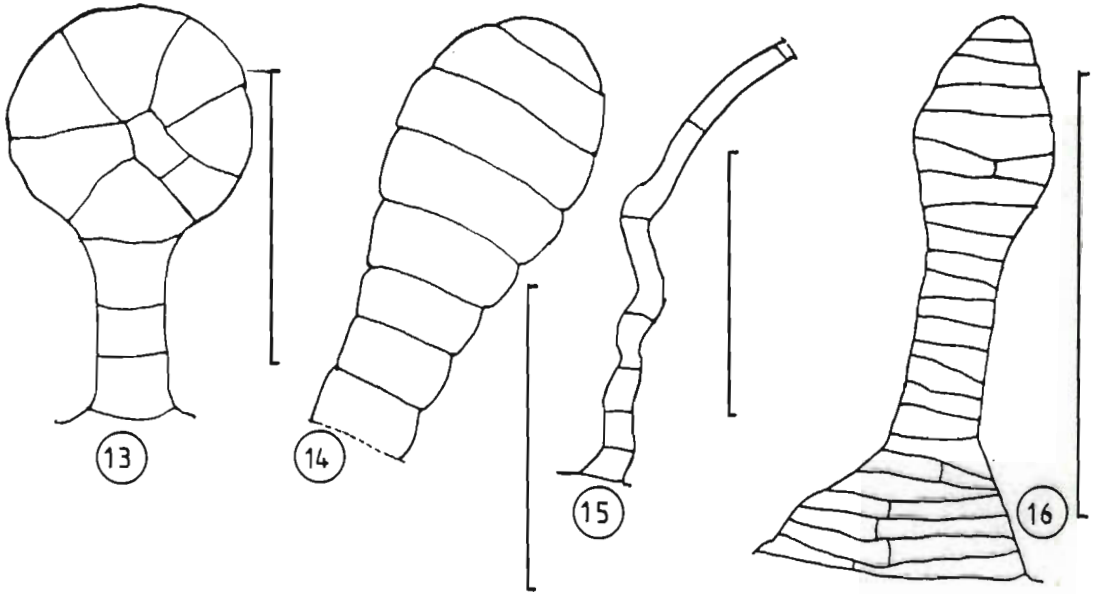
- 01 Glabrous.
- 02 Densely pubescent along the double keeled region (woolly-cobwebby, wispy).
- 03 Glabrous, except for an apical tuft of hairs, also a few hairs along the keeled portion.
- 04 Densely pubescent (hispid) all over (abaxial surface).
- 05 Glandular-pubescent, viscid.

APPENDIX A continued

- 06 Densely villous and pilose (gland-tipped hairs).
 - 07 Densely glandular-pubescent.
 - 08 Densely glandular-pilose.
 - 09 Densely glandular-hispid.
 - 10 Minutely and sparsely glandular-pubescent.
 - 11 Sparsely glandular-pubescent.
 - 12 Moderately glandular-pubescent.
 - 13 Densely pubescent with a cobwebby and villous indumentum.
 - 14 Sparsely scabrid pubescent.
 - 15 Moderately glandular-pilose.
 - 16 Sparsely glandular-pilose.
 - 17 Sparsely pubescent.
 - 18 Types 1, 12 and 15.
 - 19 Densely pubescent.
 - 20 Types 7 or 19.
 - 21 Sparsely pubescent.
 - 22 Sparsely to densely glandular-pubescent.
 - 23 Sparsely to moderately glandular-pubescent.
 - 24 Thinly pilose.
 - 25 Moderately pilose and villous.
 - 26 Sparsely pilose.
 - 27 Very sparsely pubescent.
 - 28 Usually glabrous, occasionally densely pubescent.
 - 29 Moderately to lightly cobwebby.
 - 30 Sparsely woolly.
 - 31 Some pubescence with sessile glandular trichomes (very sparse).
 - 32 Sparsely to moderately pubescent.
 - 33 Moderately pubescent.
 - 34 Glabrous or moderately pubescent.
-

INVOLUCRAL BRACTS: TRICHOMES (CHAR 054)

INVOLUCRAL BRACTS: TRICHOMES (CHAR 054)
continued



AS FOR 4 &
MANY EGLANDULAR
TRICHOMES

(17)

TYPE 4
& A FEW
OF TYPE 22

(18)

TYPES 11 & 22

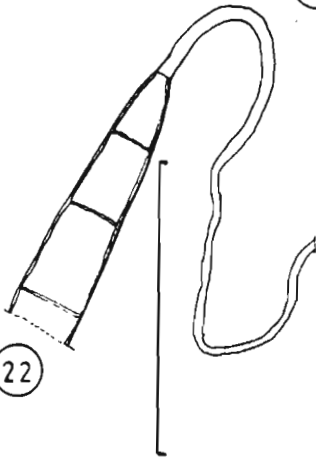
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TYPES 7 & 10

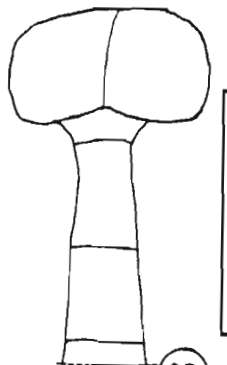
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TYPES 10 & 22

(21)



(22)



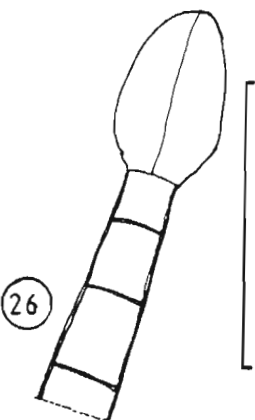
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PREDOM. TYPE 22 BUT ALSO
TYPE 23

(24)

TYPES 5 & 22

(25)



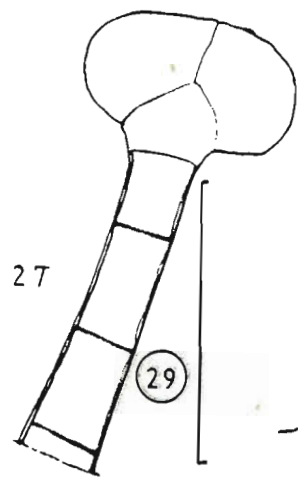
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TYPES 22 & 26

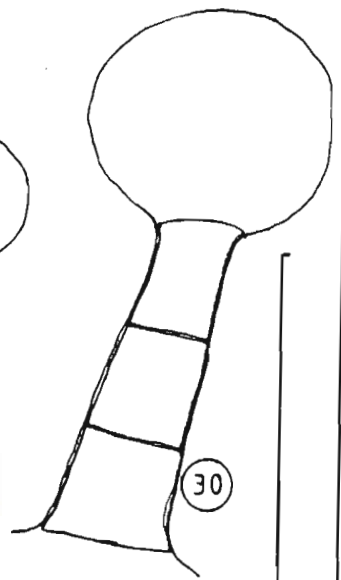
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PREDOM. TYPE 26
BUT ALSO TYPE 27

(28)



(29)



(30)

SCALE BARS = 1mm

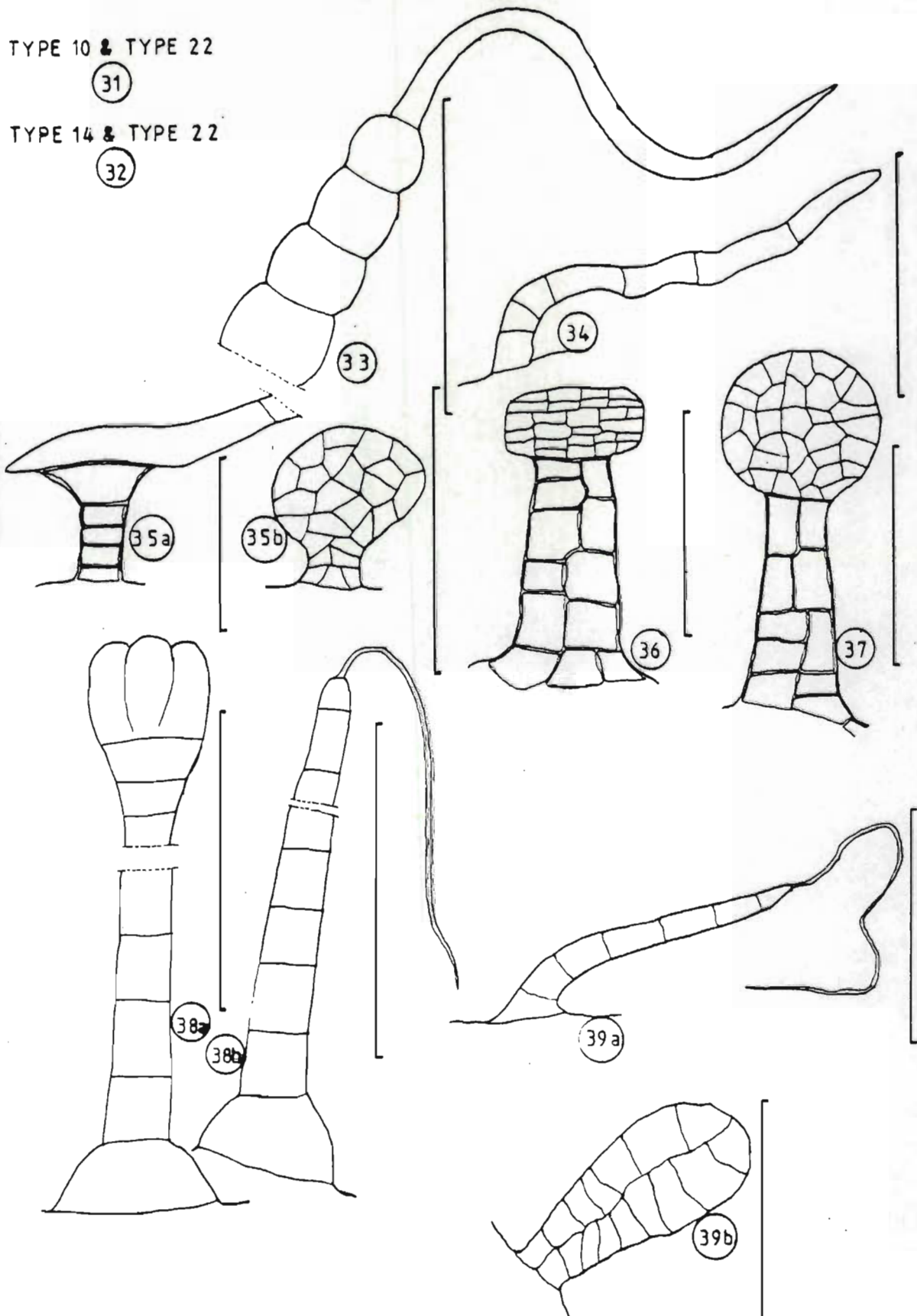
INVOLUCRAL BRACTS: TRICHOMES (CHAR 054)
continued

TYPE 10 & TYPE 22

31

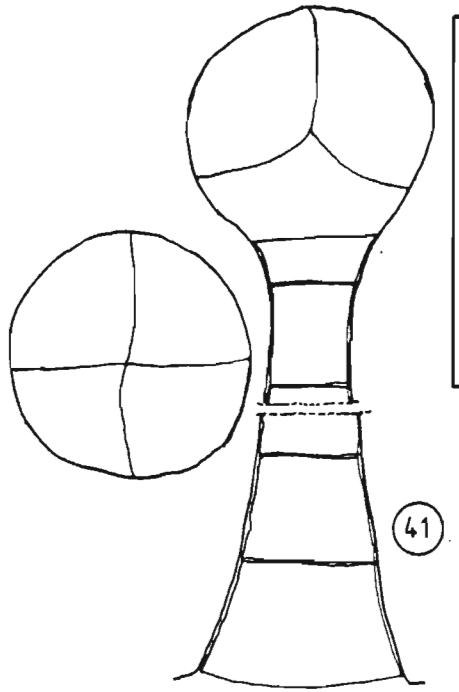
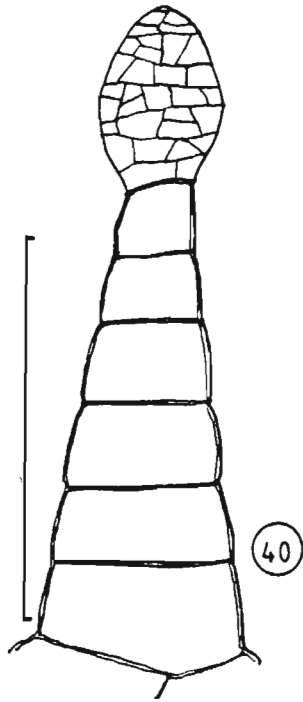
TYPE 14 & TYPE 22

32



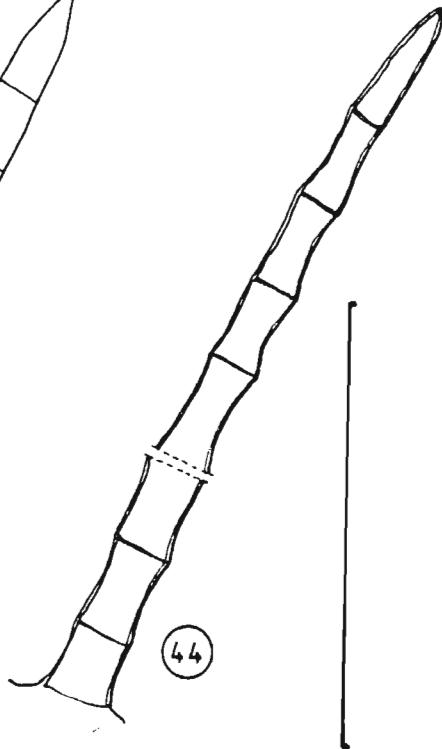
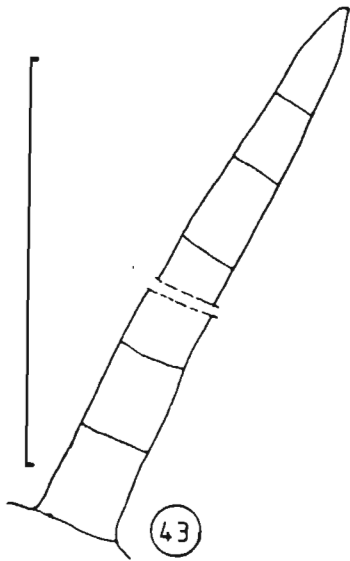
SCALE BARS = 1mm

INVOLUCRAL BRACTS: TRICHOMES (CHAR 054)
continued



TYPE 38b

(42)



SCALE BARS = 1mm

APPENDIX A continued

INVOLUCRAL BRACTS: APEX VESTITURE
(CHAR 055)

- 01 Finely papillose.
 - 02 Finely and densely papillose, forming a fan-shaped apex, also a little verrucose.
 - 03 Tuft of apical hairs, finely papillose and a little verrucose.
 - 04 Finely papillose, subapically verrucose.
 - 05 Finely papillose and verrucose, subapical margin finely papillose and a little toothed.
 - 06 Finely papillose, subapically verrucose down either side of the keel.
 - 07 Finely and densely papillose, subapically verrucose.
 - 08 A few unicellular papillae (long) or papillae absent.
 - 09 Finely papillose (multi- and unicellular hairs), subapically verrucose.
 - 10 Tuft of apical hairs, finely papillose and verrucose down either side of keel for a short distance.
 - 11 Tuft of apical hairs, finely papillose and a little verrucose, upper margins finely papillose.
-

INVOLUCRAL BRACTS: LENGTH RELATIVE TO DISC FLORETS (CHAR 056)

- 1 Noticeably shorter than the disc florets.
 - 2 A little longer than the disc florets.
 - 3 About equalling or shorter than the disc florets.
 - 4 A little shorter than the disc florets.
 - 5 About equalling or a little longer than the disc florets.
 - 6 Reaching to the base of the campanulate portion of the florets.
-

INVOLUCRAL BRACTS: GLANDULAR (CHAR 057)

- 1 Gland-tipped hairs.
 - 2 Eglandular.
 - 3 Resinous.
 - 4 Gland-tipped hairs and viscid.
 - 5 Glandular tips to some of the hairs.
 - 6 Eglandular or glandular tips to some of the hairs.
 - 7 Glandular tips to some of the hairs, resinous.
 - 8 Eglandular but with resinous lines (ducts).
 - 9 Eglandular but with 3-8 orange resinous lines (ducts).
-

INVOLUCRAL BRACTS: COLOUR (CHAR 058)

- 1 Green with tinges of purple down the keel.
- 2 Green with darkly pigmented apices.

APPENDIX A continued

- 3 Green/brown.
 - 4 Green with purple tinged apices.
 - 5 Green/brown with dark apices and a dark median nerve.
 - 6 Green/brown with dark-brown pigmented apices.
 - 7 White-felted.
 - 8 Green/brown with pale yellow veins.
-

CALYCVLUS BRACIS: NUMBER (CHAR 059)

- 1 1-2 bracts
 - 2 3-5 bracts
 - 3 6-9 bracts
 - 4 10-12 bracts
 - 5 14-18 bracts
 - 6 20-30 bracts
 - 9 Bracts absent
-

CALYCVLUS BRACIS: LENGTH (CHAR 060)

- 1 1-2 mm
 - 2 3-6 mm
 - 3 7-9 mm
 - 4 10-17 mm
 - 9 Bracts absent
-

CALYCVLUS BRACIS: POSITION (CHAR 061)

- 01 Around the base of the involucral bracts.
 - 02 Appressed, ascending and descending the base of the involucre.
 - 03 Around the base of the involucral bracts and descending a little below the involucral bracts.
 - 04 A little below the base of the involucral bracts.
 - 05 Around the base of the involucral bracts and often overlapping.
 - 06 3-4 series; around the base of the involucral bracts.
 - 07 1-3 series; around the base of the involucral bracts and descending a little below the involucral bracts.
 - 08 Sub-biseriate.
-

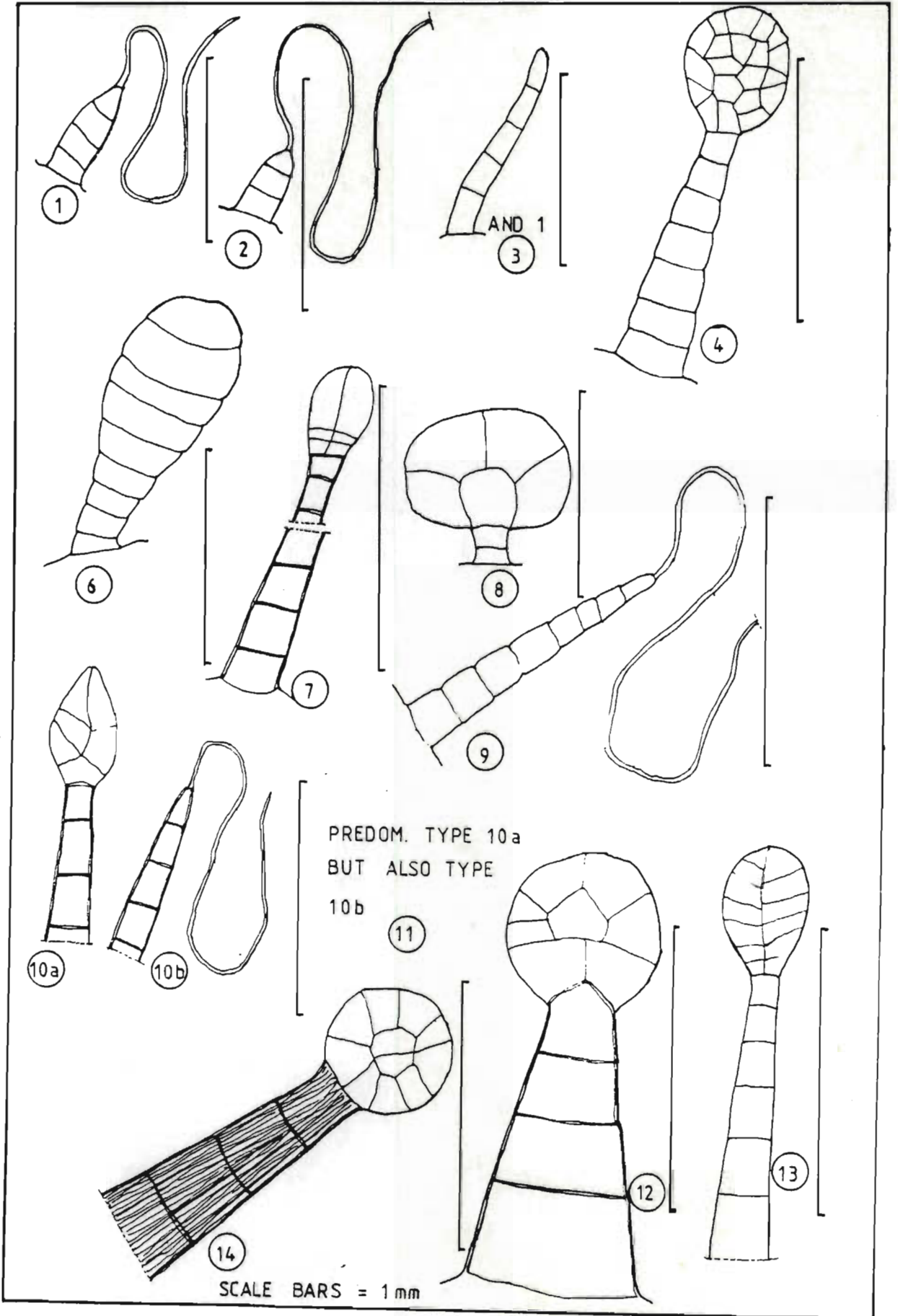
CALYCVLUS BRACIS: PUBESCENCE (CHAR 062)

- 01 Virtually glabrous - a few short scattered hairs; apex with a small tuft of papillose cells.
- 02 Pubescent; woolly-cobwebby vestiture.
- 03 Pubescent (lightly); apex with a tuft of long hairs, apical cells papillose/verrucose.
- 04 Densely pubescent (hispid) all over abaxial surface.
- 05 Glabrous.

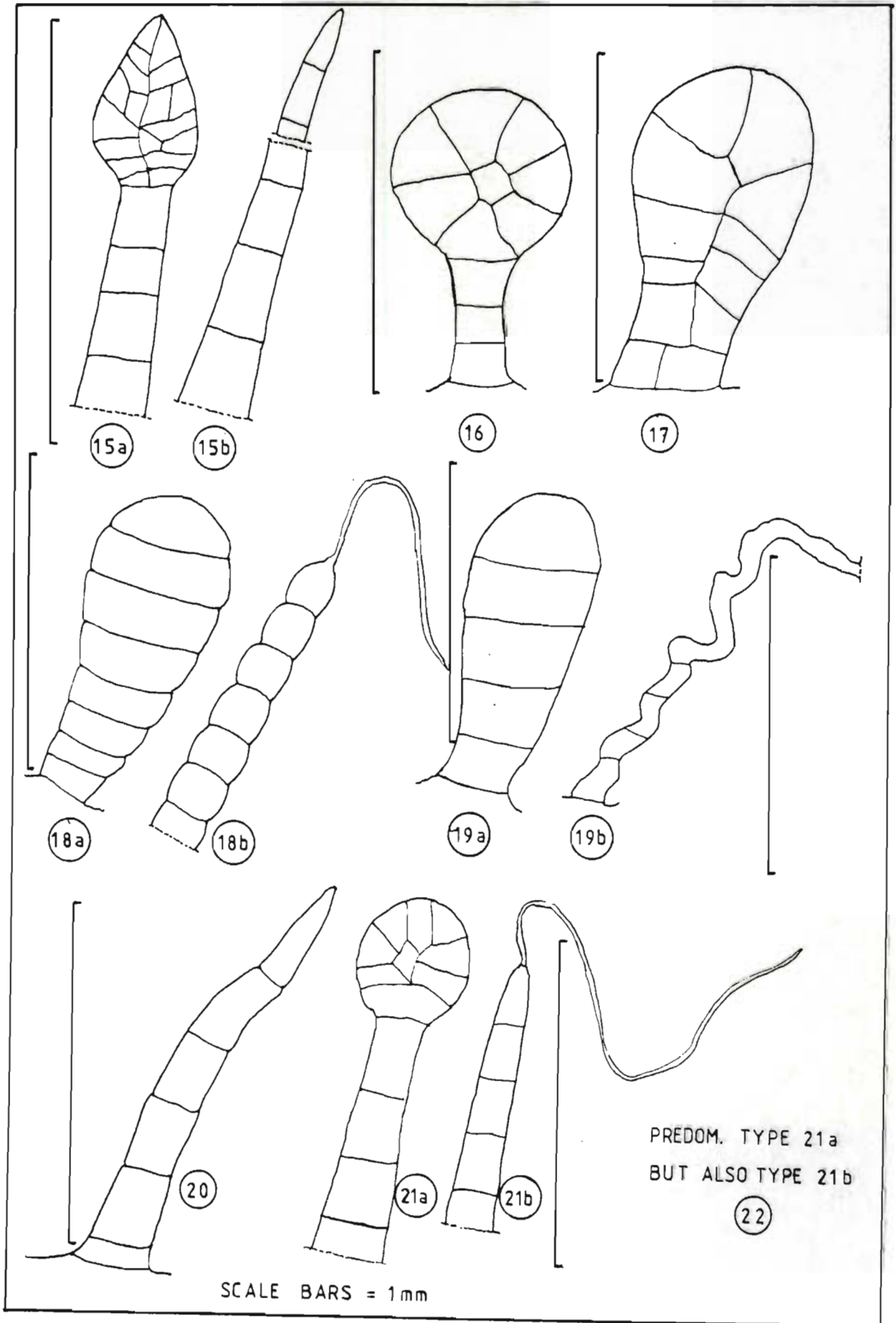
APPENDIX A continued

- 06 Virtually glabrous - a few short hairs scattered along margins.
 - 07 Glandular-pubescent and viscid.
 - 08 Virtually glabrous - a few tapered hairs with a long whip-like apical appendage.
 - 09 Densely villous and pilose.
 - 10 Densely glandular-pubescent.
 - 11 Glandular-pubescent (verging on being pilose) - not dense.
 - 12 Densely glandular-pilose.
 - 13 Moderately glandular-hispid.
 - 14 Sparsely glandular-pubescent.
 - 15 Minutely and sparsely glandular-pubescent.
 - 17 Densely villous and pilose, forming a cobwebby indumentum (a few short gland-tipped hairs).
 - 18 Sparsely pubescent down mid-region.
 - 19 Sparsely glandular-pilose.
 - 20 Moderately pubescent (villous).
 - 21 Sparsely pubescent (villous).
 - 22 Types 5 and 14.
 - 23 Types 8 and 12.
 - 24 Densely pubescent.
 - 25 Densely pubescent or glandular-pubescent.
 - 26 Moderately pubescent.
 - 27 Moderately pubescent to densely glandular-pubescent.
 - 28 Moderately glandular-pubescent.
 - 29 Densely pilose.
 - 30 Moderately pilose.
 - 31 Sparsely ciliate (margins).
 - 32 Types 5 or 31.
 - 33 Glabrous or sparsely ciliate (margins).
 - 34 Moderately pilose and villous.
 - 35 Densely pubescent with a cobwebby and villous indumentum.
 - 36 Very sparsely pubescent, margins ciliate.
 - 37 Sparsely glandular-hispid.
 - 38 Sparsely puberulous.
 - 39 Usually glabrous, occasionally densely pubescent.
 - 40 Moderately - lightly cobwebby.
 - 41 Sparsely pubescent.
 - 42 Very sparsely pubescent.
 - 43 Moderately glandular-pilose.
 - 44 Sparsely to moderately pubescent.
 - 45 Moderately ciliate (margins).
 - 46 Glabrous or moderately pubescent.
-

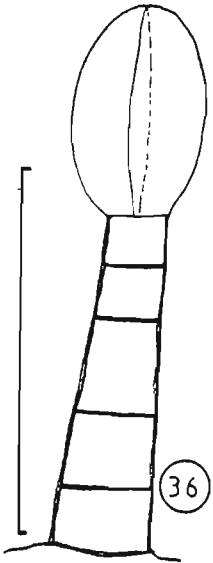
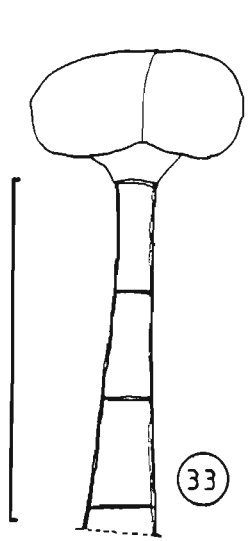
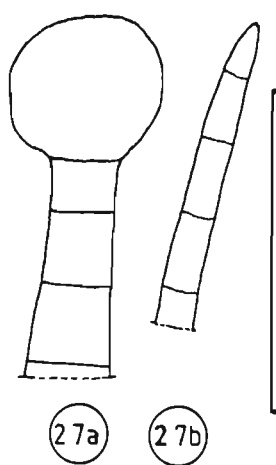
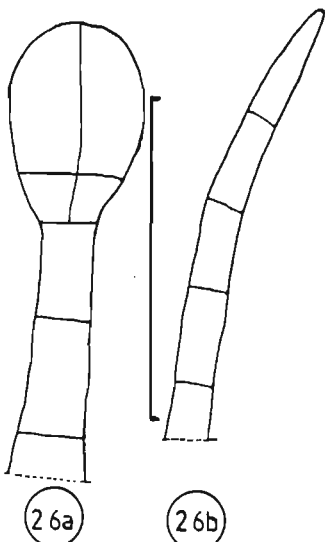
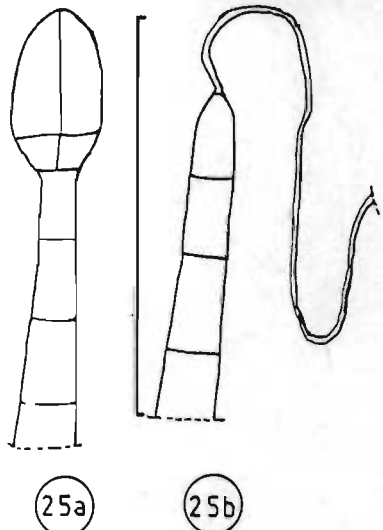
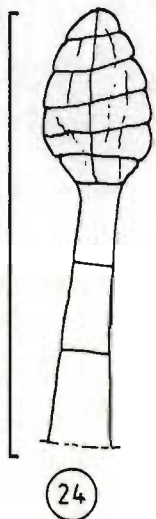
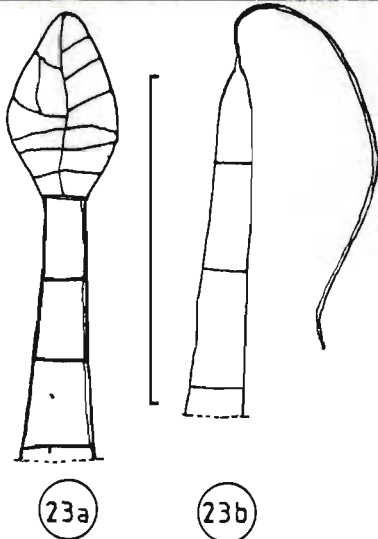
CALYCVLUS BRACTS: TRICHOMES (CHAR 063)



CALYCVLUS BRACTS: TRICHOMES (CHAR 063)
continued



CALYCVLUS BRACTS: TRICHOMES (CHAR 063)
continued



PREDOM. TYPE 8, BUT
ALSO TYPE 21a (28)

TYPE 19b (29)

PREDOM. TYPE 17,
BUT ALSO TYPE 18 (a & b) (30)

TYPES 10 & 22 (31)

TYPES 9, 13 & 27 (32)

PREDOM. TYPE 9,
BUT ALSO TYPE 33 (34)

USUALLY TYPE 9,
BUT ALSO TYPE 25 (35)

SCALE BARS = 1mm

CALYCVLUS BRACTS: TRICHOMES (CHAR 063)
continued

PREDOM. TYPE 9
BUT ALSO TYPE 36

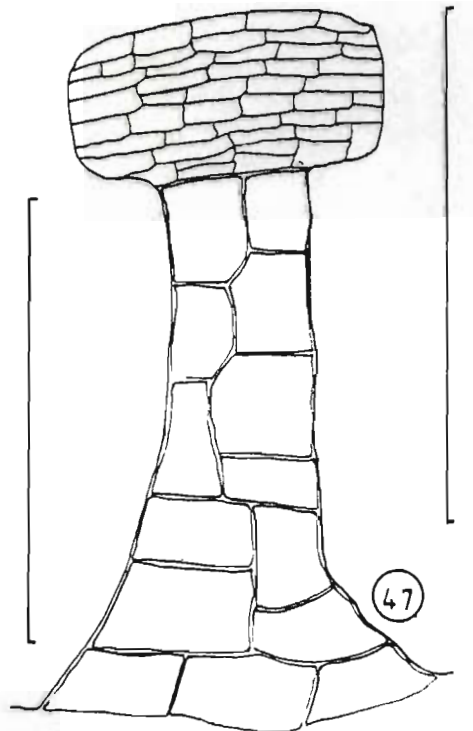
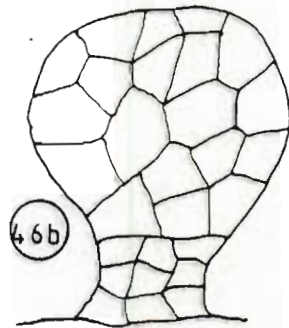
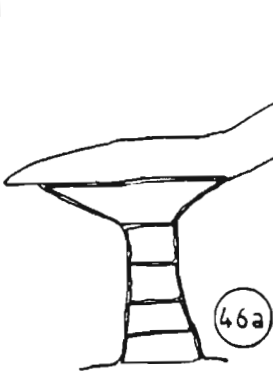
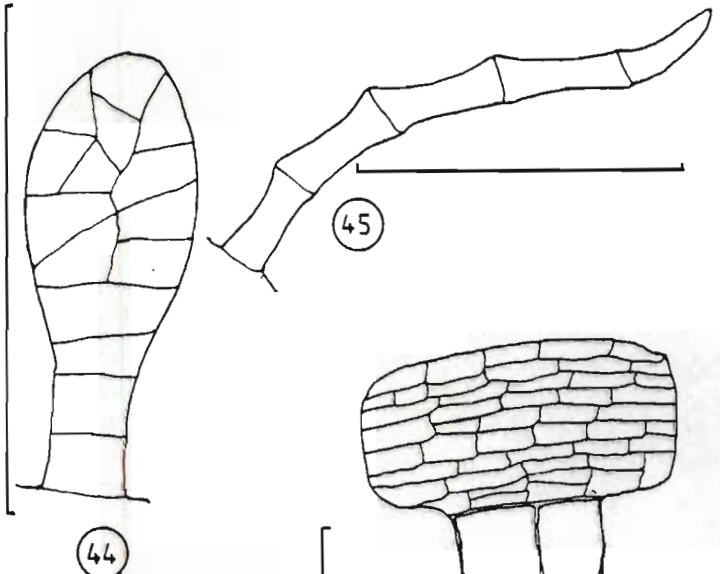
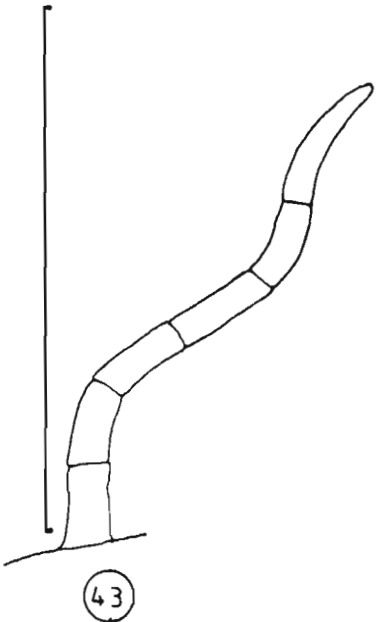
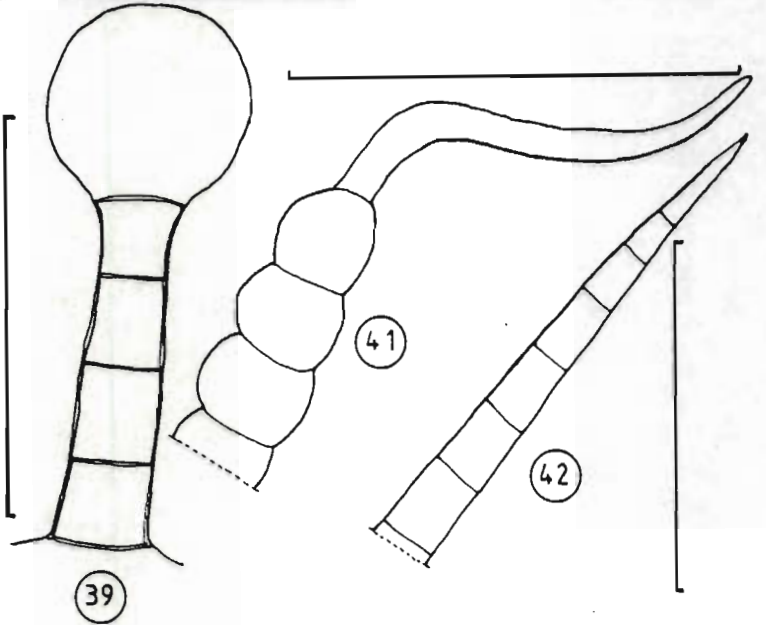
(37)

USUALLY TYPE 36
BUT ALSO TYPE 37

(38)

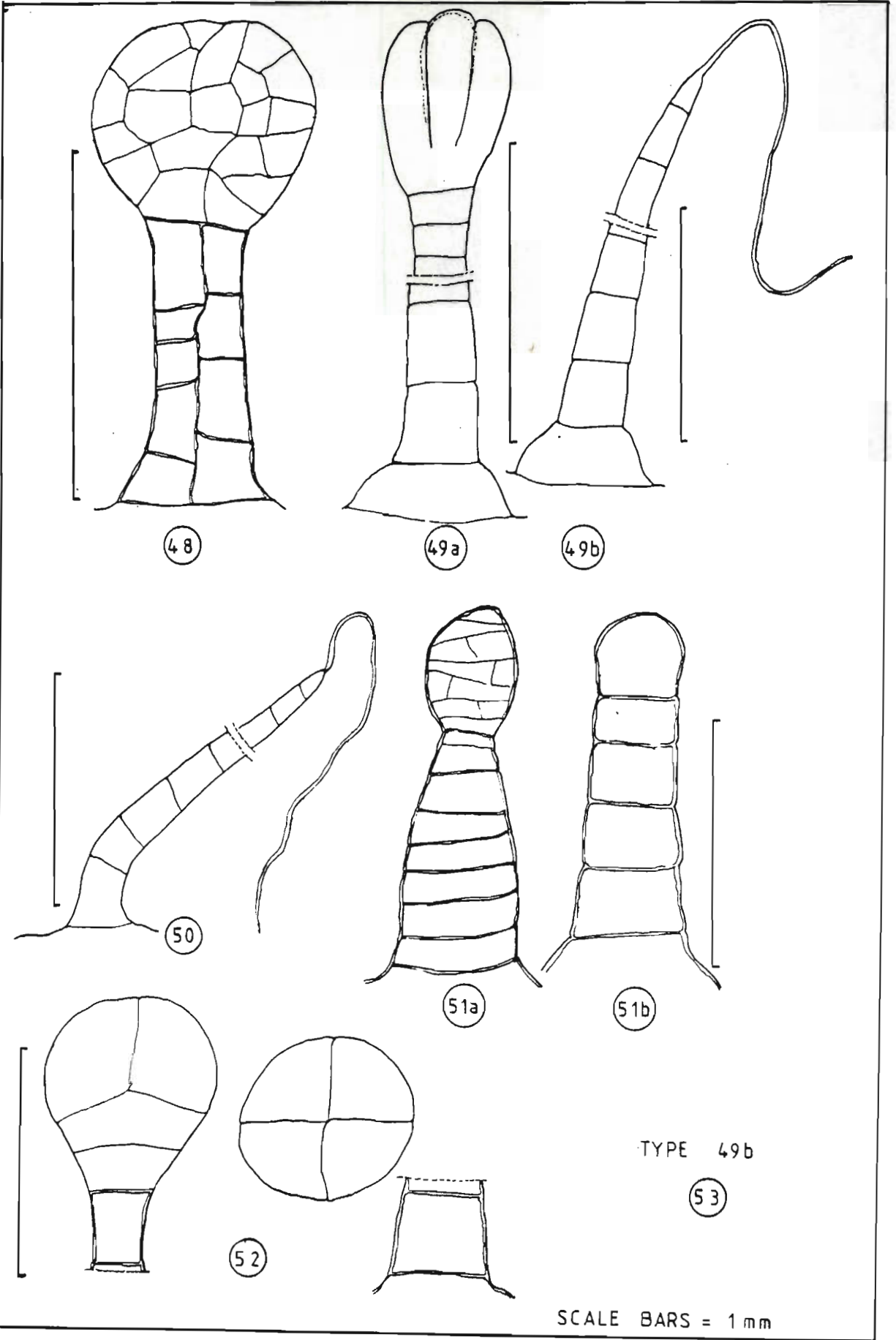
TYPES 6 & 9

(40)



SCALE BARS = 1mm

CALYCVLUS BRACTS: TRICHOMES (CHAR 063)
continued



APPENDIX A continued

CALYCVLUS BRACIS: APEX VESTITURE

(CHAR 064)

- 02 Sparsely papillose.
 - 03 Very sparsely papillose.
 - 04 Dense tuft of long hairs.
 - 05 Finely and densely papillose, forming an apical tuft.
 - 06 Finely verrucose.
 - 07 Apex irregularly toothed; a few papillose cells.
 - 08 Sparsely pubescent with glandular hairs.
 - 09 Glabrous.
 - 10 Tuft of uni- and multicellular hairs and verrucose.
 - 11 2-3 multicellular (2-6 cells).
 - 12 About 5 long unicellular hairs.
 - 13 A few (c. 5) multicellular hairs (c. 5 cells) and a few unicellular hairs (c. 5).
 - 14 Solitary elongated apical cell.
 - 15 A few unicellular hairs and a little papillose.
 - 16 Tuft of hairs (unicellular) and a little papillose and subapically verrucose.
 - 17 Types 9, 14 and 15.
 - 18 Absent or type 13.
-

CALYCVLUS BRACIS: GLANDULAR (CHAR 065)

- 1 Glandular tips to hairs - excluding the apical hairs.
 - 2 Not glandular.
 - 3 Resinous.
 - 4 Gland-tipped hairs and resinous.
 - 5 Gland-tipped hairs and viscid.
 - 6 Glandular tips to some of the hair apices.
 - 7 Eglandular but sometimes type 6.
 - 8 Orange resinous veins (nerves).
-

CALYCVLUS BRACIS: COLOUR (CHAR 066)

- 1 Green with purple/red tinges.
 - 2 Green/brown with darkly pigmented apices.
 - 3 Green/brown.
 - 4 Tinged purple/red.
 - 5 Green with purple/red tinged apices.
 - 6 Green base otherwise purple/red.
 - 7 Purple/red.
 - 8 Green/brown/white-felted.
 - 9 Green.
-

APPENDIX A continued

CALYCVLUS BRACTS: SHAPE (CHAR 067)

- 01 Oblong with acute apex and finely toothed margins.
 - 02 Lanceolate.
 - 03 Oblong and almost linear.
 - 04 Oblong and apex acute.
 - 05 Oblong and apex acuminate.
 - 06 Deltoid.
 - 07 Oblong with an obtuse apex.
 - 08 Generally oblong-elliptic.
 - 09 Broadly elliptic (and foliaceous).
-

FLOWER COLOUR: RAY FLORETS (CHAR 068)

- 01 Purple.
 - 02 Canary yellow.
 - 03 Purple or sometimes lilac or pure white.
 - 04 Deep pink to purple.
 - 05 Mauve, magenta or bluish.
 - 06 Yellow.
 - 07 Yellow above, bright red below.
 - 08 Yellow but lower surface may be bright red.
 - 09 Pale yellow (clear yellow).
 - 10 Bright yellow.
 - 11 Yellow or orange-yellow.
-

FLOWER COLOUR: DISC FLORETS (CHAR 069)

- 01 Dull deep violet.
- 02 Purple.
- 03 Dull purple.
- 04 Yellow.
- 05 Canary yellow.
- 06 Mauve, lilac or whitish.
- 07 White with mauve anthers.
- 08 Pale mauve, white or deep yellow (can be dull yellow).
- 09 Deep pink to purple.
- 10 Whitish, yellowish, purple or blue.
- 11 Purple or red-purple.
- 12 Purplish, dull brownish-purple or dark blue.
- 13 Purplish or mustard yellow.
- 14 Purple, mauve, oxford blue or white.
- 15 Purple or yellowish.
- 16 Purple or dull yellow.
- 17 Whitish or dull yellow, ageing brown, sometimes tips of lobes dull blue.
- 18 Purple, sometimes paler or whitish.
- 19 Whitish or pale violet to purple.
- 20 Buff or pale creamy yellow.

APPENDIX A continued

- 21 Pale yellow (clear).
 - 22 Bright yellow.
 - 23 Yellow or orange-yellow.
 - 24 Pale yellow, each corolla lobe with a median orange line traversing down to the base of the tube.
 - 25 Yellow, each corolla lobe with a median orange, resinous line, descending on the inflated part of the corolla tube.
 - 26 Bright yellow, each corolla lobe with a median yellow, resinous line descending down the tube.
 - 27 White.
 - 28 Scarlet, sometimes orange-scarlet or almost crimson.
 - 29 Yellow or orange.
 - 30 Creamy white or pale yellow.
 - 31 Lilac.
 - 32 Pinkish-mauve.
 - 33 Blue to magenta.
 - 34 Orange.
-

RAY COROLLA: FLORET NUMBER (CHAR 070)

- 1 2-4 florets.
 - 2 5-8 florets.
 - 3 9-11 florets.
 - 4 12-14 florets.
 - 9 Absent (NC value).
-

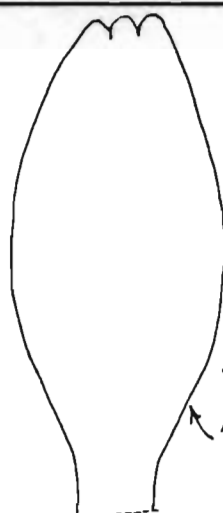
RAY COROLLA: COROLLA LENGTH (CHAR 071)

- 1 5,0-7,5 mm
 - 2 8,0-11,0 mm
 - 3 12,0-15,0 mm
 - 4 16,0-20,0 mm
 - 5 21,0-25,0 mm
 - 6 26,0-40,0 mm
 - 9 Absent (NC value).
-

RAY COROLLA: COROLLA SHAPE (CHAR 072)

①

TUBULAR WITH
AN OBLONG
LIMB, c.3mm OR
WIDER



②

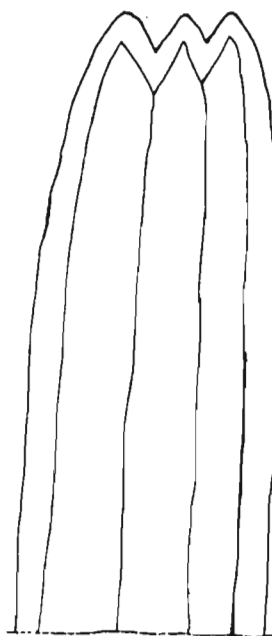
TUBULAR WITH
AN OBLONG/ELLIPTIC
LIMB

SIMILAR TO TYPE
1, BUT c.2mm WIDE

③

RAY COROLLA: LIMB VENATION (CHAR 073)

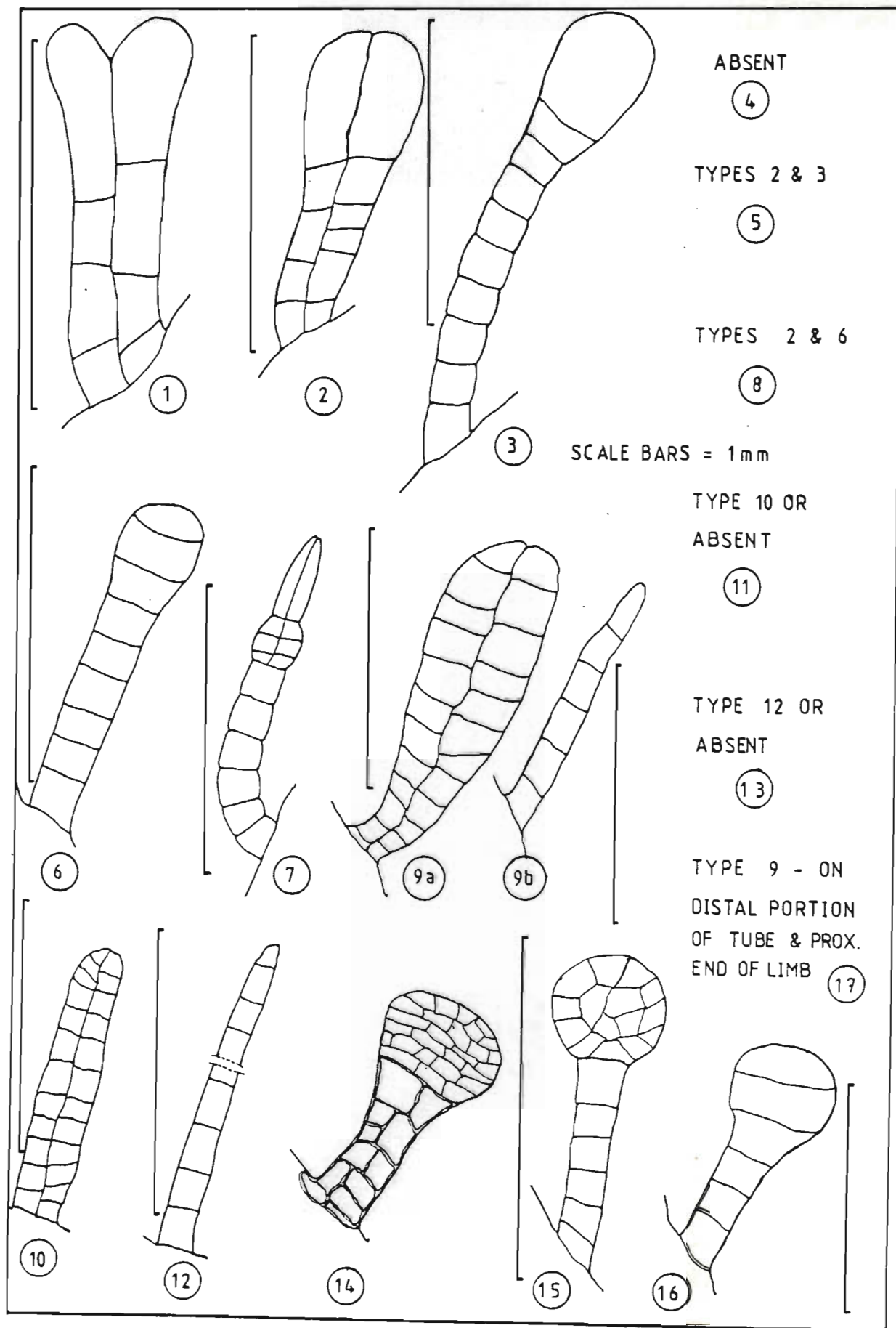
①



②

TYPE 2, BUT VEINS ORANGE

④

RAY COROLLA: COROLLA TRICHOMES (CHAR 074)

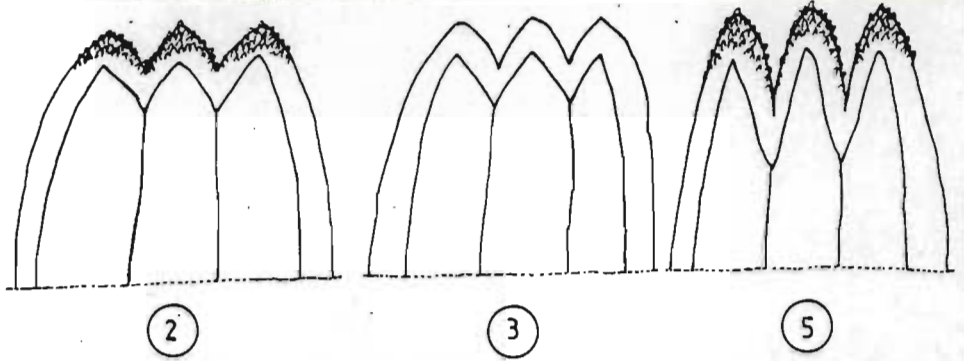
RAY COROLLA: RESINOUS (CHAR 075)

- 01 Resin ducts appear to follow venation pattern.
- 02 No obvious resin ducts.

RAY COROLLA: LIMB APEX (CHAR 076)

ENTIRE

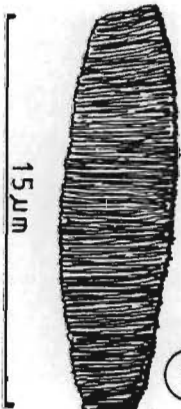
①



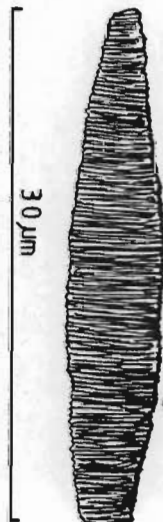
RAY COROLLA: LIMB SHAPE (CHAR 077)

- 01 16 mm or longer - oblong and parallel sided.
- 02 Less than 16 mm - oblong and parallel sided.
- 03 Types 1 and 2.
- 04 Less than 16 mm - oblong/elliptic.

RAY COROLLA: LIMB EPIDERMAL CELL SHAPE (CHAR 078)



⑤



⑥

PREDOM. TYPE 5,
BUT ALSO TYPE 6

⑪

APPENDIX A continued

RAY COROLLA: LIMB ORIENTATION (CHAR 079)

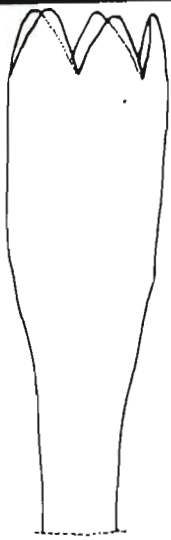
- 01 Patent.
 - 02 Often rolled under, otherwise patent.
 - 03 Reflexed (soon reflexed).
 - 04 Very short, equalling the length of the disc florets (vertical).
 - 05 Soon recurved.
-

DISC COROLLA: FLORET NUMBER (CHAR 080)

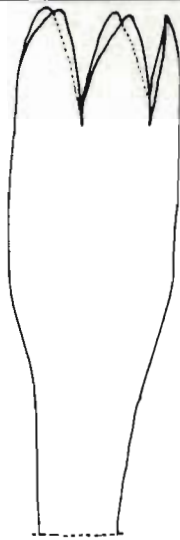
- 1 5-8 disc florets.
 - 2 10-30 disc florets.
 - 3 40-60 disc florets.
 - 4 70-90 disc florets.
 - 5 More than 100 disc florets.
-

DISC COROLLA: FLORET LENGTH (CHAR 081)

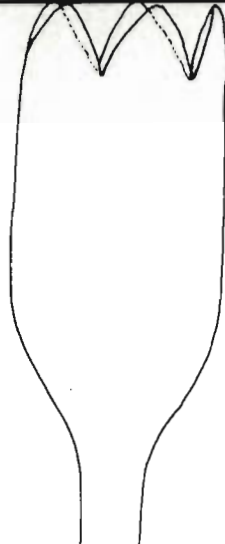
- 1 4,0-4,7 mm
 - 2 5,0-8,8 mm
 - 3 9,0-15,0 mm
 - 4 17,0 mm or longer.
-

DISC COROLLA: COROLLA SHAPE (CHAR 082)

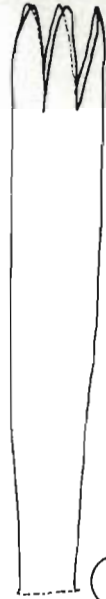
①



②



③



④

DISC COROLLA: VENATION (CHAR 083)

01 Closed venation.

DISC COROLLA: COROLLA TRICHOMES

(CHAR 084)

ABSENT

①

USUALLY ABSENT,
OCC. TYPE 5

⑥

USUALLY ABSENT,
OCC. TYPE 4

⑦

USUALLY ABSENT
OCC. TYPE 3

⑧

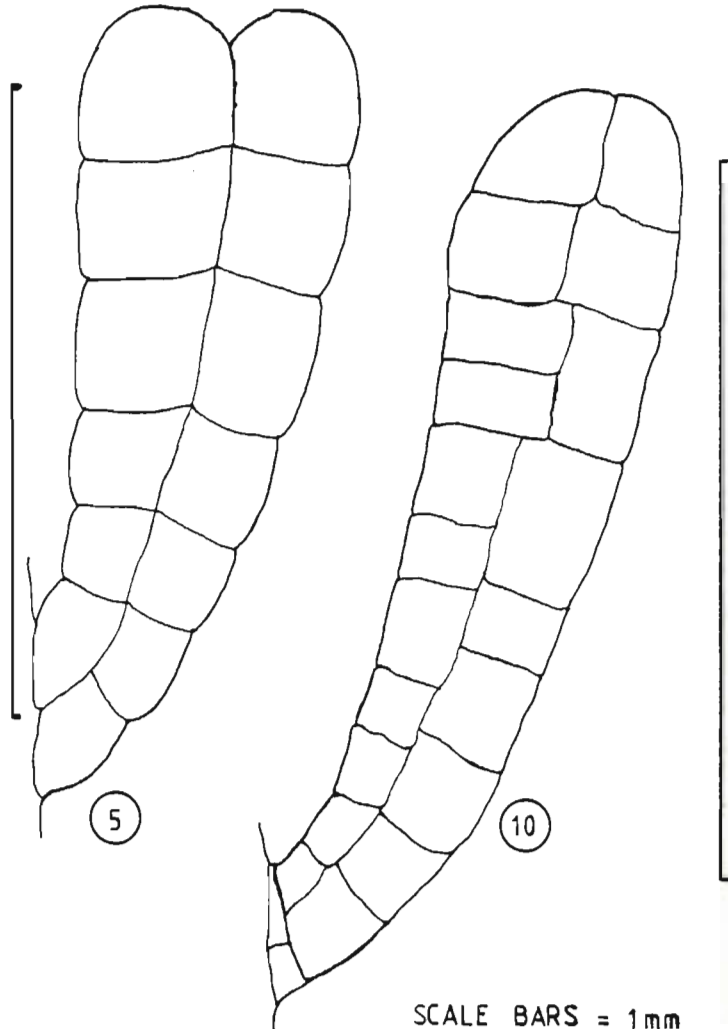
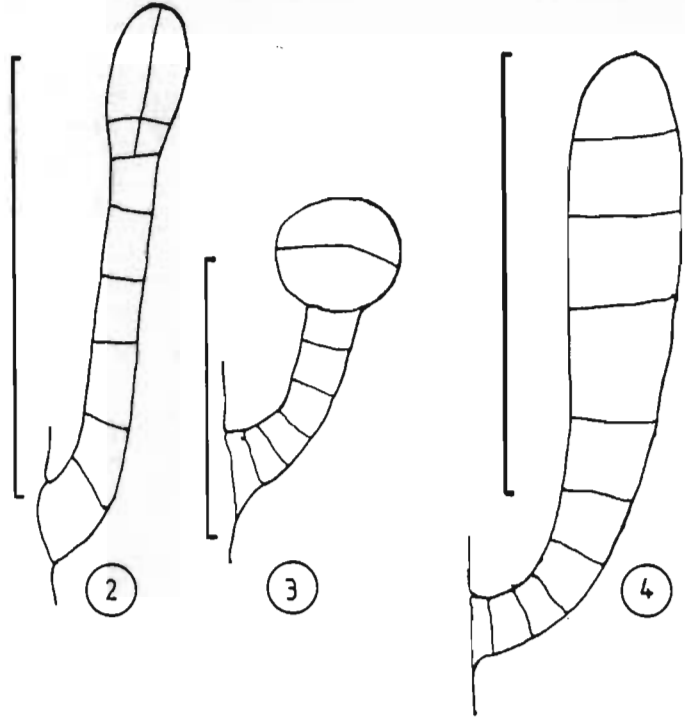
TYPE 10 OR
ABSENT

⑪

OCC. TYPE 10

OR ABSENT

⑫



SCALE BARS = 1mm

APPENDIX A continued

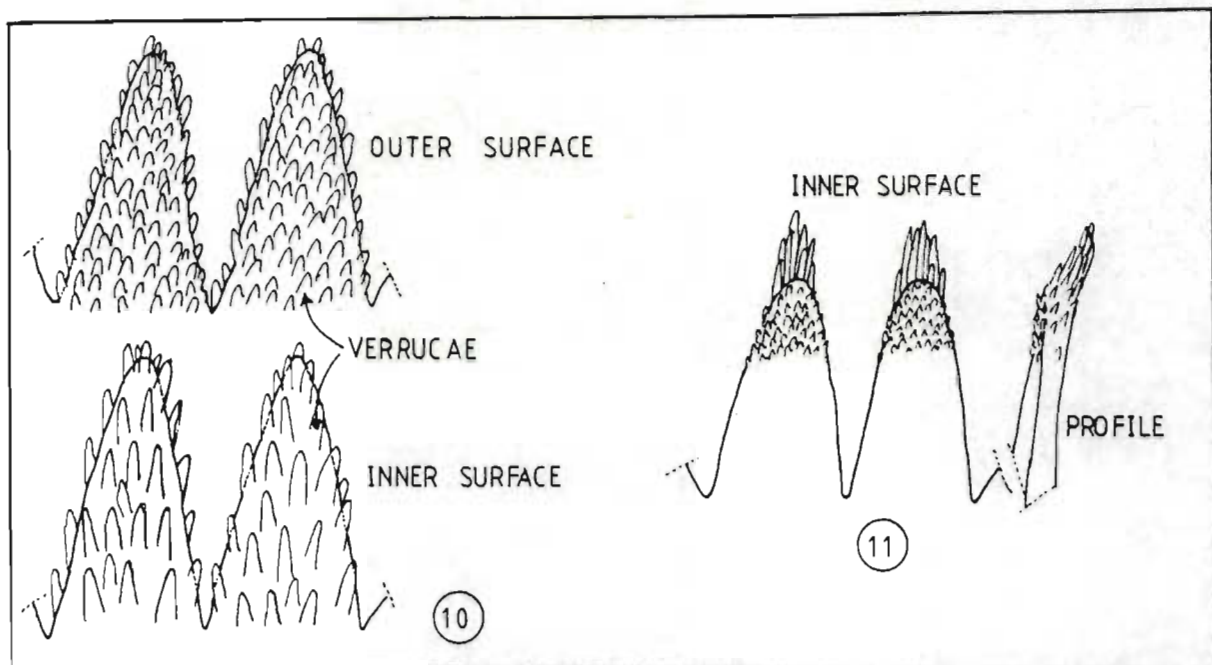
DISC COROLLA: RESINOUS (CHAR 085)

- 01 Resin ducts appear to follow the venation pattern.
 - 02 Resin ducts appear to follow the venation pattern and one broad, median resin duct traverses each corolla lobe to the apex - from the base of the campanulate portion.
 - 03 A short median resinous line down each corolla lobe - not traversing much below the lobe sinuses.
 - 04 Median orange resinous line descending each lobe, down to the base of the corolla tube.
 - 05 Usually type 1 but sometimes type 2.
 - 06 Median orange resinous line descending the inflated portion of the corolla tube - from each lobe apex.
 - 07 Median yellow resinous line descending each lobe, down to the base of the corolla tube.
-

DISC COROLLA: LOBE APEX (CHAR 086)

- 01 Outer surface of lobes raised and composed of a group of indistinctly verrucose cells.
- 02 Outer and inner surface of lobe apices and margins, finely and densely verrucose.
- 03 Apex papillose, subapically verrucose.
- 04 Outer surface of lobe noticeably raised (swollen) and covered with verrucae.
- 05 Outer surface of each lobe apex distinctly swollen but without verrucae.
- 06 Outer surface of each lobe apex finely and densely verrucose - verrucae on the extreme apex noticeably pointed.
- 07 Outer and inner surface of each lobe apex very finely verrucose.
- 08 The lobe apices with several multicellular hairs - also finely and densely verrucose.
- 09 Lobe apices smooth (not verrucose); surface below apices densely verrucose.

APPENDIX A continued



12 Predominantly type 11 but type 2 also found.

13 Lobe apices completely smooth.

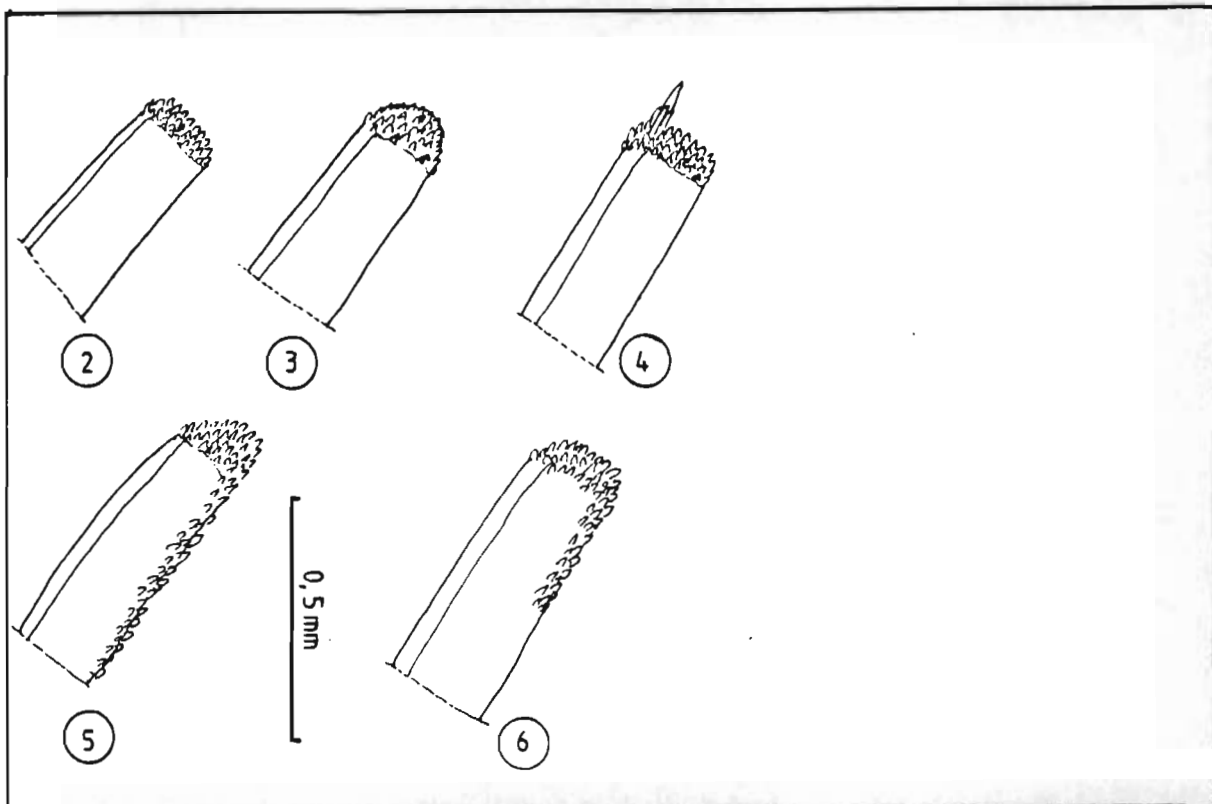
GYNOECIUM (RAY): STYLE-ARM LENGTH

(CHAR 087)

- | | |
|---|--------------------|
| 1 | 0.4-1.4 mm |
| 2 | 1.5 mm or longer. |
| 9 | Absent (NC value). |

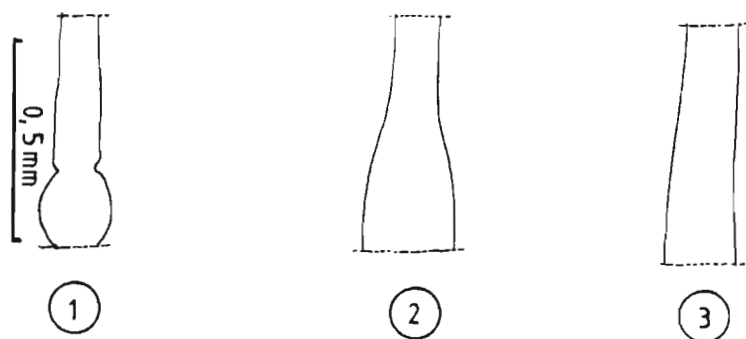
GYNOECIUM (RAY) : STYLE-ARM APICES

(CHAR 088)

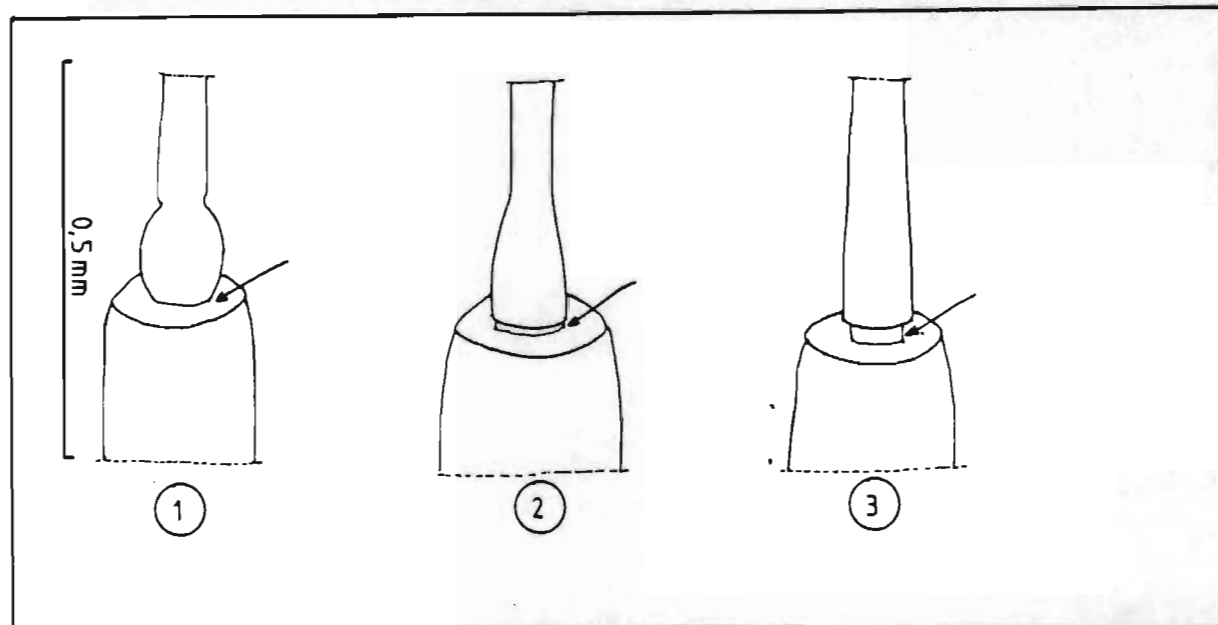
**GYNOECIUM (RAY) : STIGMATIC SURFACE**

(CHAR 089)

01 Down the entire inner surface of each style-arm, with a median cleft: "cleft" configuration.

GYNOECIUM (RAY) : STYLE BASE (CHAR 090)

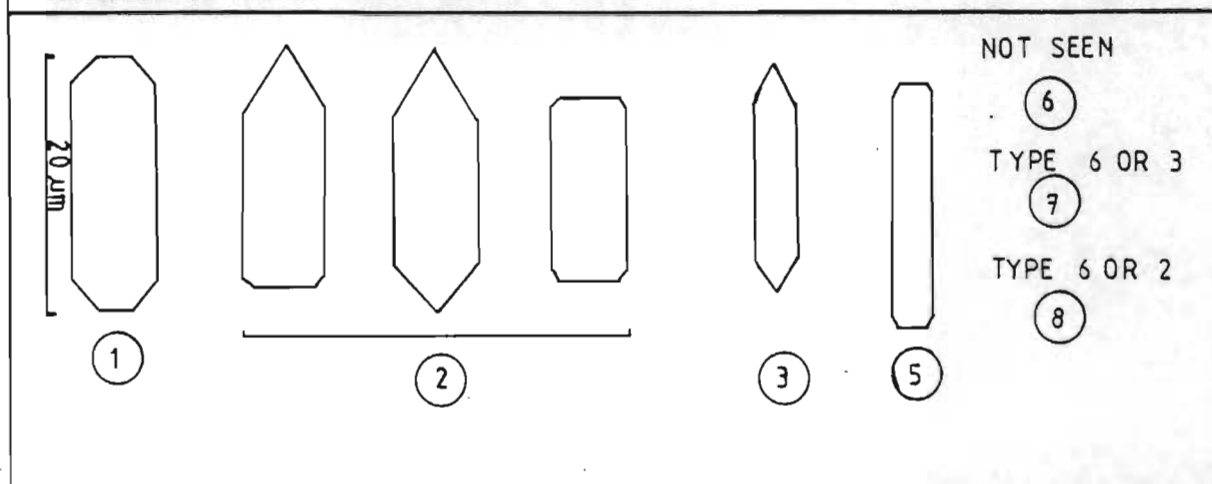
GYNOECIUM (RAY) : NECTARY (CHAR 091)



GYNOECIUM (RAY) : OVARY VESTITURE (CHAR 092)

- 01 Glabrous.
 03 Finely and densely pubescent between the ribs; hairs all "duplex".
 04 Densely covered with long white "duplex" hairs.
 05 Hispidulous - "duplex" hairs.
 06 Sparsely hispid between the ribs - "duplex" hairs.
 07 Densely hispid between the ribs - "duplex" hairs.
 08 Densely hispid on the ribs - "duplex" hairs.
 09 Densely and minutely puberulous all over - "duplex" hairs.
 10 Sparsely hispid at the distal and proximal ends, otherwise glabrous - "duplex" hairs.
 11 White-hispid between the ribs - "duplex" hairs.
 12 Sparsely hispidulous - "duplex" hairs.
 13 Moderately hispid between the ribs - "duplex" hairs.
 14 Villous - "duplex" hairs.
 15 Very sparsely hispidulous - "duplex" hairs.
 16 Densely pubescent - "duplex" hairs.
 17 Thinly villous - "duplex" hairs.
 18 Glabrous or very sparsely hispidulous - "duplex" hairs.
 19 Margins ciliate (hispid) and often ciliate on the 'faces' (median line) as well.
-

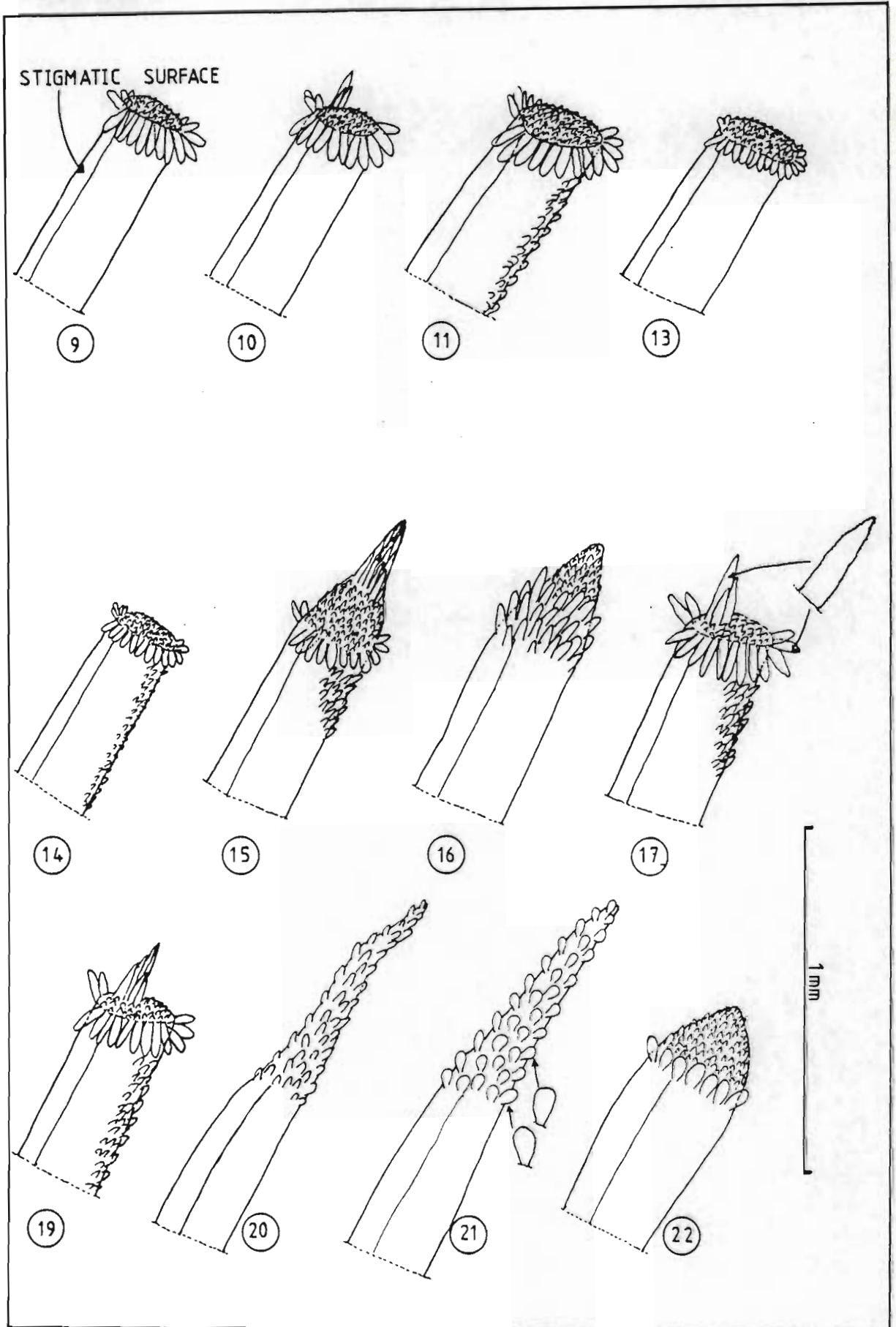
GYNOECIUM (RAY) : OVARY WALL
CRYSTALS (CHAR 093)



GYNOECIUM (DISC) : STYLE-ARM LENGTH
 (CHAR 094)

- 1 0,5 mm or shorter.
 - 2 0,6-1,5 mm
 - 3 1,6-2,5 mm
 - 4 3,0-3,5 mm
-

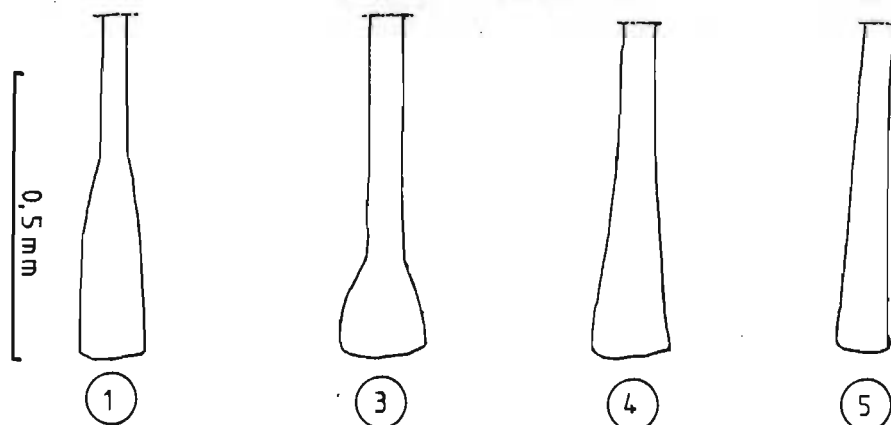
GYNOECIUM (DISC): STYLE-ARM APICES
(CHAR 095)



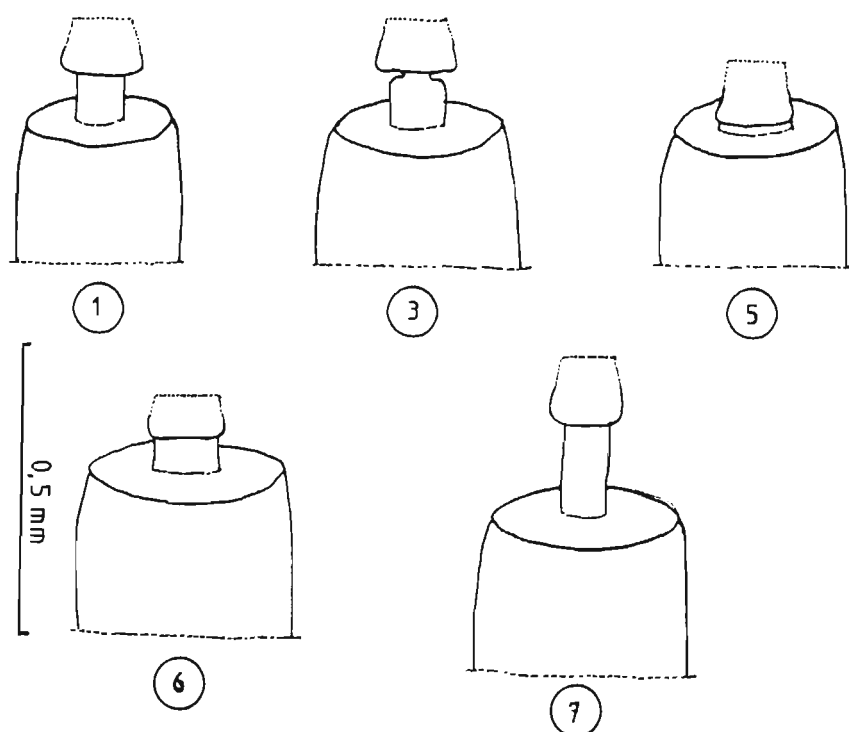
GYNOECIUM (DISC) : STIGMATIC SURFACE
 (CHAR 096)

1 Down the entire inner surface of each style-arm, with a median cleft:
 "cleft" configuration.

GYNOECIUM (DISC) : STYLE BASE (CHAR 097)



GYNOECIUM (DISC) : NECTARY (CHAR 098)



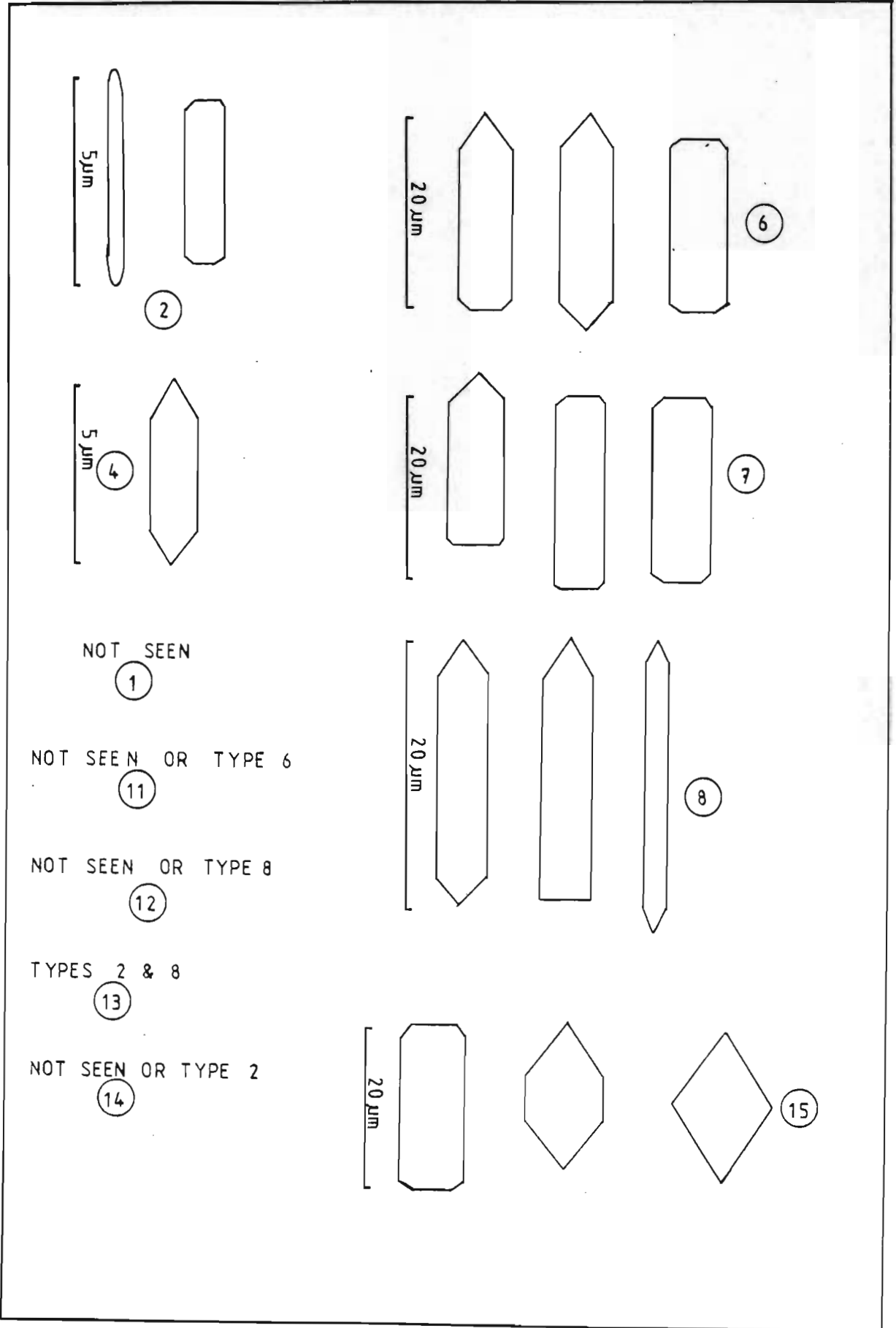
APPENDIX A continued

GYNOECIUM (DISC): OVARY VESTITURE

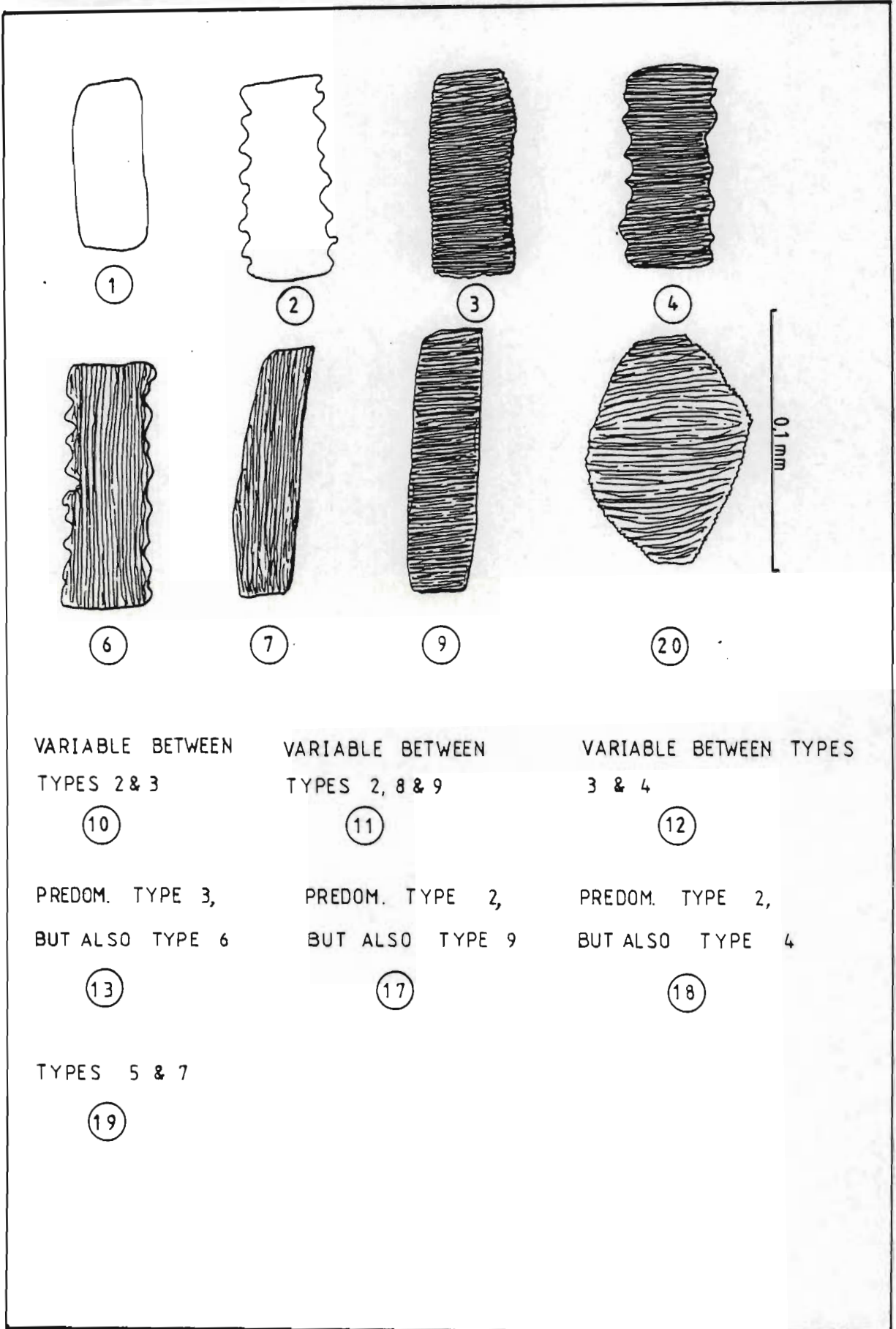
(CHAR 099)

- 01 Glabrous.
 - 02 Densely hirsute between the ribs - "duplex" hairs.
 - 03 Glabrous - rarely minutely hispid between the ribs - "duplex" hairs.
 - 04 Densely pubescent between the ribs - "duplex" hairs.
 - 05 Finely and densely pubescent between the ribs - "duplex" hairs.
 - 07 Finely and moderately hispid between the ribs - "duplex" hairs.
 - 08 Sparsely hispid between the ribs - "duplex" hairs.
 - 09 Covered with long white hairs - "duplex" hairs.
 - 10 Covered with long hairs - pilose - "duplex" hairs.
 - 11 Densely hispid - "duplex" hairs.
 - 12 Densely hispid between the ribs; each hair with an internal pattern of transverse striations - "duplex" hairs.
 - 13 Moderately hispid all over - "duplex" hairs.
 - 14 Hispidulous between the ribs (very feint) - "duplex" hairs.
 - 15 Densely hispid between the ribs - "duplex" hairs.
 - 16 Densely pilose - "duplex" hairs.
 - 17 Sparsely hispidulous around the base, otherwise glabrous - "duplex" hairs.
 - 18 Moderately hispid between the ribs - "duplex" hairs.
 - 19 Densely hispid on the ribs - "duplex" hairs.
 - 20 Densely and minutely puberulous all over - "duplex" hairs.
 - 21 Moderately hispid between the ribs; each hair with an internal pattern of transverse striations - "duplex" hairs.
 - 22 Sparsely hispidulous - "duplex" hairs.
 - 23 Types 12, 15 and 18 occur.
 - 24 Types 1, 8 and 18 occur.
 - 25 Types 5, 8 and 17 occur.
 - 26 Moderately white-hispid between the ribs - "duplex" hairs.
 - 27 Densely villous - "duplex" hairs.
 - 28 Very sparsely hispidulous - "duplex" hairs.
 - 29 Densely pubescent - "duplex" hairs.
 - 30 Thinly villous - "duplex" hairs.
 - 31 Glabrous or very sparsely hispidulous - "duplex" hairs.
 - 32 Densely hispid; hairs clavate/obovate down the angles - "duplex" hairs.
 - 33 Margins ciliate (hispid), often ciliate on the faces (median) as well - "duplex" hairs.
-

GYNOECIUM (DISC) : OVARY WALL
CRYSTALS (CHAR 100)



DISC COROLLA: DISTAL EPIDERMAL CELL
SHAPE (CHAR 101)



VARIABLE BETWEEN
TYPES 2 & 3

(10)

PREDOM. TYPE 3,
BUT ALSO TYPE 6

(13)

TYPES 5 & 7

(19)

VARIABLE BETWEEN
TYPES 2, 8 & 9

(11)

PREDOM. TYPE 2,
BUT ALSO TYPE 9

(17)

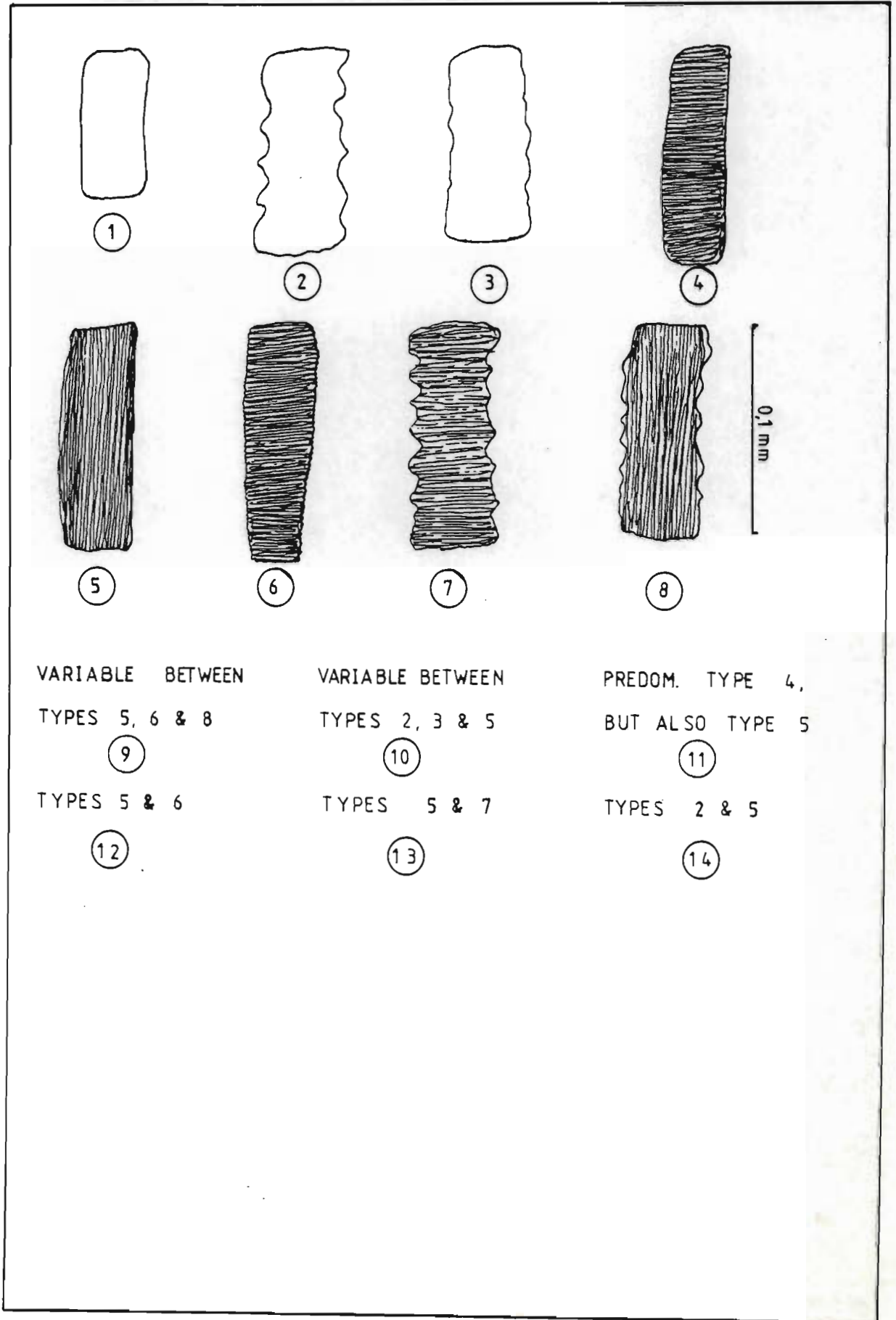
VARIABLE BETWEEN TYPES
3 & 4

(12)

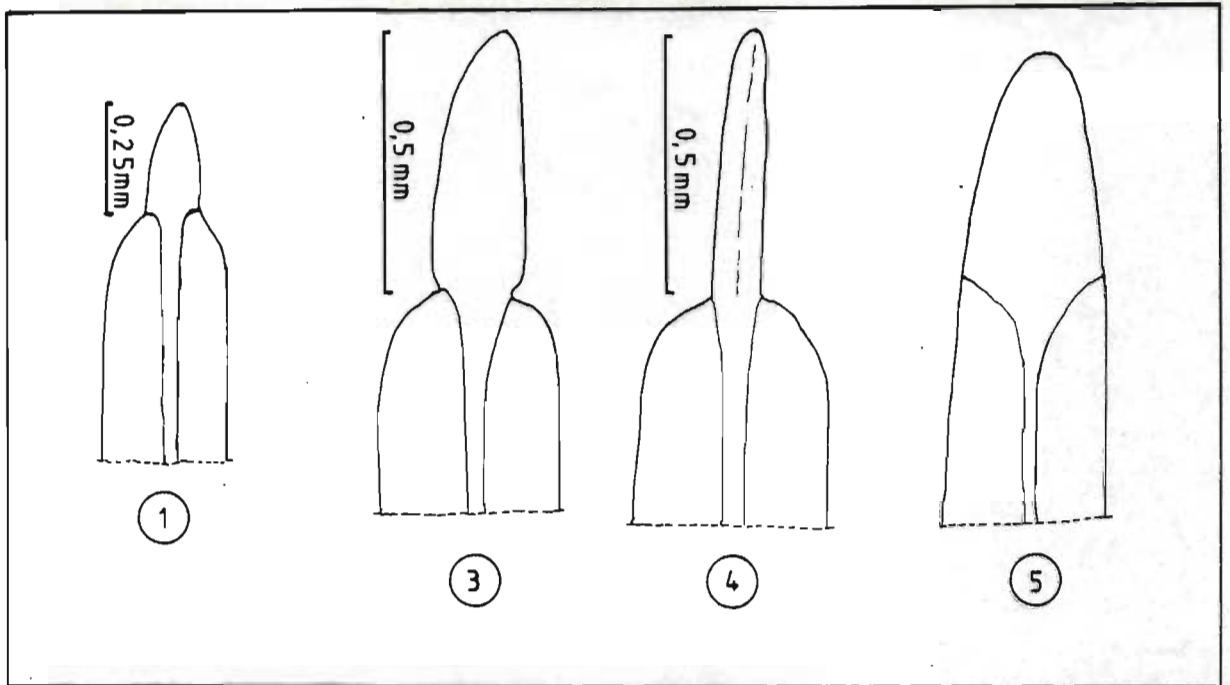
PREDOM. TYPE 2,
BUT ALSO TYPE 4

(18)

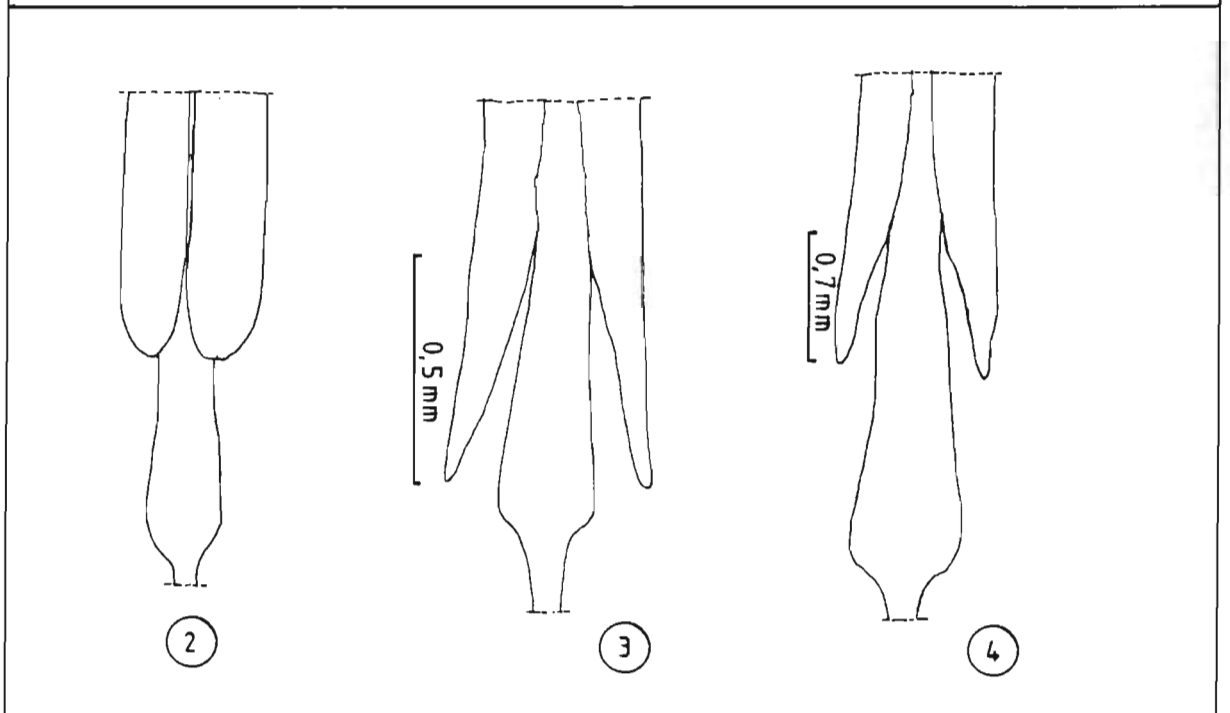
DISC COROLLA: PROXIMAL EPIDERMAL CELL SHAPE (CHAR 102)



ANDROECIUM (DISC) : ANTHOR APEX (CHAR 103)



ANDROECIUM (DISC) : ANTHOR BASE APPEARANCE (CHAR 104)



PREDOM. TYPE 2
BUT ALSO TYPE 4

5

PREDOM. TYPE 4
BUT ALSO TYPE 2

6

APPENDIX A continued

ANDROECIUM (DISC): ANTHOR LENGTH

(CHAR 105)

- 1 1,7 mm or less.
 - 2 1,8-2,2 mm
 - 3 2,3-2,9 mm
 - 4 3,0-4,0 mm
-

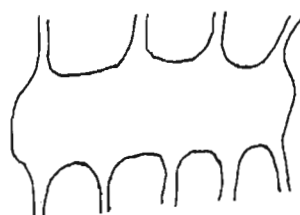
ENDOTHELIAL TISSUE: CELL SHAPE (CHAR 106)

- 01 Elongate.
 - 02 Square (isodiametric) to slightly elongate.
-

ENDOTHELIAL TISSUE: CELL WALL CONFIGURATION (CHAR 107)

- 06 Radial anticlinal configuration - marked peg-like pattern, sometimes with a median 'T' shaped process on each peg-like projection - see Figs. 22a, 22b & 23.
- 10 Polarised endothelial thickening and a little radial anticlinal thickening on some cells - just a few peg-like projections.

11

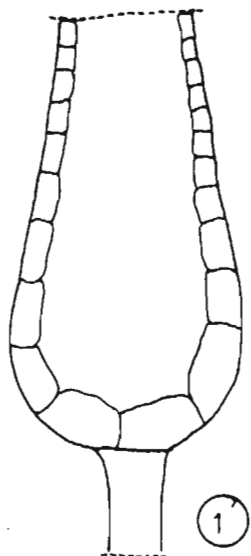
**FILAMENT COLLARS: LENGTH** (CHAR 108)

- 1 0,2 mm or less.
 - 2 0,3-0,6 mm
 - 3 0,7-0,9 mm
 - 4 1,0-1,4 mm
 - 5 1,6-2,3 mm
-

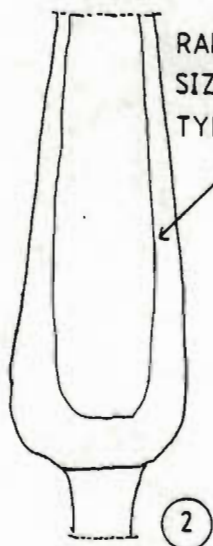
FILAMENT COLLARS: BASAL WIDTH (CHAR 109)

- 1 0,1 mm or less.
 - 2 0,2-0,4 mm
-

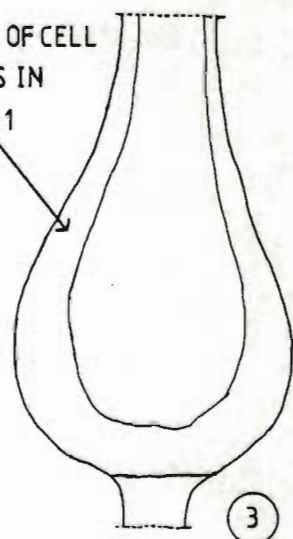
FILAMENT COLLARS: SHAPE (CHAR 110)



1



2



3

RANGE OF CELL
SIZE AS IN
TYPE 1

PREDOM. TYPE 2
BUT ALSO TYPE 1

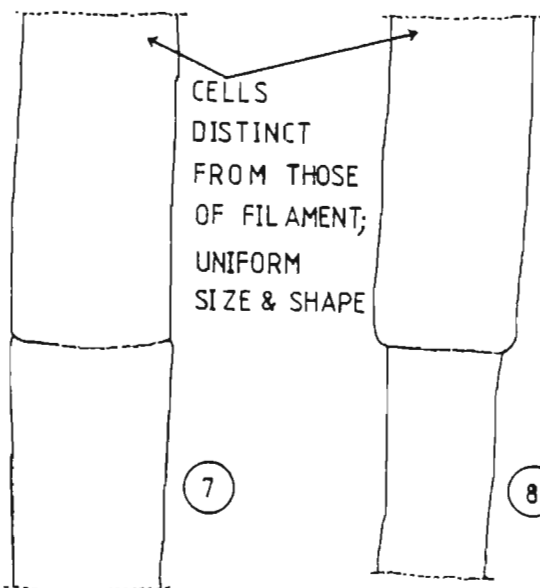
4

PREDOM. TYPE 1
BUT ALSO TYPE 2

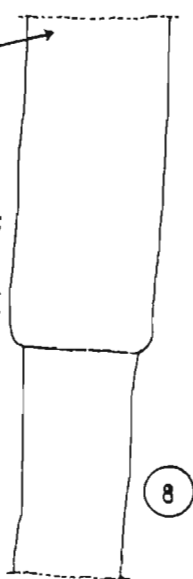
5

PREDOM. TYPE 1
BUT ALSO TYPE 3

6

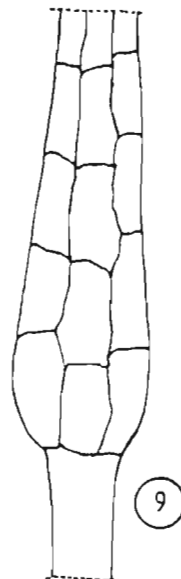


7



8

CELLS
DISTINCT
FROM THOSE
OF FILAMENT;
UNIFORM
SIZE & SHAPE



9

APPENDIX A continued

CYPSELA (RAY) : LENGTH (CHAR 111)

- 1 0,8-1,1 mm
 - 2 2,0-3,7 mm
 - 3 4,0-5,0 mm
 - 4 6,0 mm or longer.
 - 9 Absent (NC value).
-

CYPSELA (RAY) : SHAPE (CHAR 112)

- 01 Oblong and cylindrical (fusiform).
 - 02 Stocky appearance and cylindrical.
 - 03 Narrowly cylindrical.
 - 04 Oblong and cylindrical.
 - 05 Narrowly turbinate.
 - 06 Obovate, laterally compressed, margins winged.
-

CYPSELA (RAY) : RIBBING (CHAR 113)

- 03 Hardly noticeably or absent.
 - 05 Finely striate.
 - 06 Ribbed (c. 5-10 ribs).
 - 07 Closely ribbed.
 - 08 Ribbed, orange oil-filled striae between the ribs.
 - 10 Strongly 5-ribbed, the ribs noticeably raised (+- fluted in T.S.); an orange resinous vein lying in each trough between the ribs.
 - 11 Not ribbed.
-

CYPSELA (RAY) : VESTITURE (CHAR 114)

- 01 Glabrous.
- 02 Finely and densely pubescent (verging on hispid) - "duplex" hairs.
- 03 Finely and densely pubescent between the ribs - "duplex" hairs.
- 04 Covered with long white hairs - "duplex" hairs.
- 05 Sparsely hispid between the ribs - "duplex" hairs.
- 06 Moderately hispid between the ribs - "duplex" hairs.
- 07 Densely hispid between the ribs - "duplex" hairs.
- 08 Densely hispid on the ribs - "duplex" hairs.
- 09 Densely and minutely puberulous - "duplex" hairs.
- 10 Moderately pubescent between the ribs - "duplex" hairs.
- 11 Sparsely hispid around the the distal and proximal ends, otherwise glabrous - "duplex" hairs.
- 12 Sparsely hispidulous - "duplex" hairs.
- 13 Types 5 and 6.
- 14 Types 10 and 11.
- 15 Moderately white-hispid between the ribs; c. 1/4 of the distal end in

APPENDIX A continued

- two free and tapering apices; spirally thickened - "duplex" hairs.
- 16 Densely white-hispid between the ribs; cells transversely striated - "duplex" hairs.
 - 17 Densely white-hispid between the ribs - "duplex" hairs.
 - 18 Densely white-hispid between the ribs; cells may be transversely striated - "duplex" hairs.
 - 19 Densely villous - "duplex" hairs.
 - 20 Very sparsely hispidulous - "duplex" hairs.
 - 21 Densely pubescent - "duplex" hairs.
 - 22 Very sparsely hispidulous or glabrous - "duplex" hairs.
 - 23 Usually type 6 but type 15 also found.
 - 24 Ciliate (hispid) along the margins and sometimes on the faces (median) as well - "duplex" hairs.
-

**CYPSELA (RAY) : PERICARP CELLS -
SHAPE (CHAR 115)**

- 01 Rectangular (oblong), not imbricate.
 - 02 Square (isodiametric) on ribs, not imbricate.
 - 03 Incubous imbrication.
 - 04 Square and often tuberculate.
 - 05 Noticeably rectangular and imbricate (incubous); distal end of each cell often tuberculate.
 - 06 Incubous imbrication; the distal end of each cell sometimes tuberculate.
 - 07 Types 3 and 4.
-

CYPSELA (DISC) : LENGTH (CHAR 116)

- | | |
|---|-------------|
| 1 | 1,0-1,7 mm |
| 2 | 1,8-2,7 mm |
| 3 | 2,8-3,2 mm |
| 4 | 3,5-4,3 mm |
| 5 | 4,5-7,0 mm |
| 6 | 8,0-10,0 mm |
-

CYPSELA (DISC) : SHAPE (CHAR 117)

- 01 Oblong and cylindrical.
 - 02 Fusiform and cylindrical.
 - 03 Fusiform and 3-sided.
 - 04 Narrowly turbinate.
 - 05 Cylindric and 5-angled.
 - 06 Obovate, laterally compressed, margins winged.
-

APPENDIX A continued

CYPSELA (DISC): RIBBING (CHAR 118)

- 01 About 14 very closely spaced ribs.
 - 06 Hardly noticeable or absent.
 - 07 Ribbed (c. 5-10 ribs).
 - 09 Finely striate.
 - 11 Closely ribbed (11-14 ribs).
 - 12 Ribbed, orange oil-filled striae between the striae.
 - 14 Strongly 5-ribbed.
 - 15 5-angled.
 - 16 Not ribbed.
-

CYPSELA (DISC): VESTITURE (CHAR 119)

- 01 Glabrous.
- 02 Densely hirsute between the ribs - "duplex" hairs.
- 03 Glabrous or rarely minutely hispid between the ribs - "duplex" hairs.
- 04 Densely pubescent between the ribs - "duplex" hairs.
- 05 Finely and densely hispid between the ribs - "duplex" hairs.
- 06 Finely and sparsely hispid between the ribs - "duplex" hairs.
- 07 Covered with long white hairs - "duplex" hairs.
- 08 Densely white-hispid - "duplex" hairs.
- 09 Densely hispid between the ribs; hairs transversely striated - "duplex" hairs.
- 10 Moderately hispid all over - "duplex" hairs.
- 11 Hispidulous between the ribs - "duplex" hairs.
- 12 Long white hairs (pilose) between the ribs - "duplex" hairs.
- 13 Moderately hispid between the ribs; hairs transversely striated - "duplex" hairs.
- 14 Moderately hispid between the ribs - "duplex" hairs.
- 15 Sparsely hispidulous around the base of the cypselae, otherwise glabrous - "duplex" hairs.
- 16 Densely hispid on the ribs - "duplex" hairs.
- 17 Densely and minutely puberulous all over - "duplex" hairs.
- 18 Glabrous or rarely minutely hispid between the ribs; hairs transversely striated - "duplex" hairs.
- 19 Densely pubescent/hispid between the ribs - "duplex" hairs.
- 20 Very sparsely hispid; hairs transversely striated - "duplex" hairs.
- 21 Sparsely hispidulous - "duplex" hairs.
- 22 Types 9, 11 and 19 occur - "duplex" hairs.
- 23 Types 14 and 15 occur - "duplex" hairs.
- 24 Moderately white-hispid between the ribs; apices free for c. 1/4 of the distal length, spirally thickened and tapering - "duplex" hairs.
- 25 Densely white-hispid between the ribs; hairs usually transversely striated - "duplex" hairs.
- 26 Densely white-hispid between the ribs - "duplex" hairs.
- 27 Densely white-hispid between the ribs; hairs may be transversely striated - "duplex" hairs.
- 28 Predominantly of type 19, but type 9 also occurs.

APPENDIX A continued

- 29 Sparsely hispid - "duplex" hairs.
 30 Densely villous - "duplex" hairs.
 31 Very sparsely hispidulous - "duplex" hairs.
 32 Densely pubescent - "duplex" hairs.
 33 Very sparsely hispidulous or glabrous - "duplex" hairs.
 34 Sparsely hispid between the ribs - "duplex" hairs.
 35 Densely hispid along the angles; hairs clavate/obovate - "duplex" hairs.
 36 Densely hispid between the ribs - "duplex" hairs.
 37 Usually type 36, but sometimes type 24.
 38 Type 13 or 36.
 39 Ciliate (hispid) along margins, often ciliate on faces (median) - "duplex" hairs.
-

**CYPSELA (DISC): PERICARP CELLS -
 SHAPE** (CHAR 120)

- 01 Rectangular, not imbricate.
 04 Square (isodiametric) all over, not imbricate.
 05 Incubous imbrication of cells.
 07 Slightly imbricate (incubous pattern); distal end of cells often tuberculate.
 09 Very noticeable incubous imbrication of cells.
 10 Noticeably elongate and imbricate (incubous).
 11 Types 5 and 7 together.
 13 Rectangular and imbricate (incubous pattern); very noticeable pointed tubercle on each cell, pointing distally.
 14 Type 11 or type 13.
-

PAPPUS: UNIFORM/DIMORPHIC (CHAR 121)

- 1 Uniform.
 2 Dimorphic - broad and narrow setae for both ray and disc floret pappi.
-

PAPPUS SETAE (RAY): LENGTH (CHAR 122)

- 1 3,7 mm or less.
 2 4,0-6,5 mm
 3 7,0 mm or longer.
 9 Absent (NC value).
-

PAPPUS (RAY): APPEARANCE (CHAR 123)

- 01 Pappus hairs noticeably barbed; barb density increasing towards apex; many internodes.
 02 Pappus hairs barbed; densely barbed near base; density decreasing

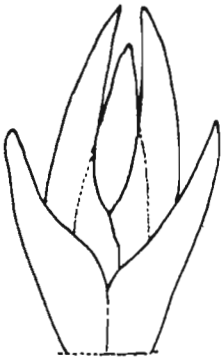
APPENDIX A continued

- towards apex; cell length increasing towards the apex.
- 03 Pappus hairs barbed; Broad hairs - not noticeably, uniform distribution of barbs; Narrow hairs - very similar to broad hairs, but barbing petering out towards a feeble apex.
- 04 Pappus hairs barbed; Broad hairs - not noticeably; barb distribution decreasing towards apex; Narrow hairs - very similar to broad hairs but much narrower and fewer barbs at nodes.
- 05 Broad pappus hairs noticeably barbed; Narrow pappus hairs not noticeably barbed; fewer barbs at nodes.
- 06 Pappus hairs noticeably barbed; barb frequency decreasing towards the apex.
- 07 Pappus hairs not noticeably barbed; barb frequency decreasing towards the apex.
- 08 Broad and narrow pappus hairs noticeably barbed; Narrow pappus hairs with lower barb frequency at nodes.
- 09 Predominantly type 7 but type 1 also found.
-

PAPPUS SETAE (RAY) : DISTAL CELL
NUMBER (CHAR 124)

- 2 Two distal cells (apex).
 3 Three distal cells (apex).
-

PAPPUS SETAE (RAY) : APEX (CHAR 125)



①



②



③

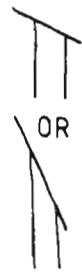


④



⑤

SLOPE



OR



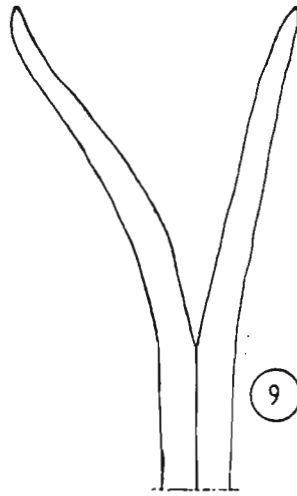
⑥



⑦

TYPES 4 & 6

⑧



⑨

1 mm

APPENDIX A continued

PAPPUS SETAE (DISC): LENGTH (CHAR 126)

- | | |
|---|--------------|
| 1 | 3,0-3,6 mm |
| 2 | 4,0-6,5 mm |
| 3 | 6,7-9,5 mm |
| 4 | 10,0-14,0 mm |
| 5 | 16,0-18,0 mm |
-

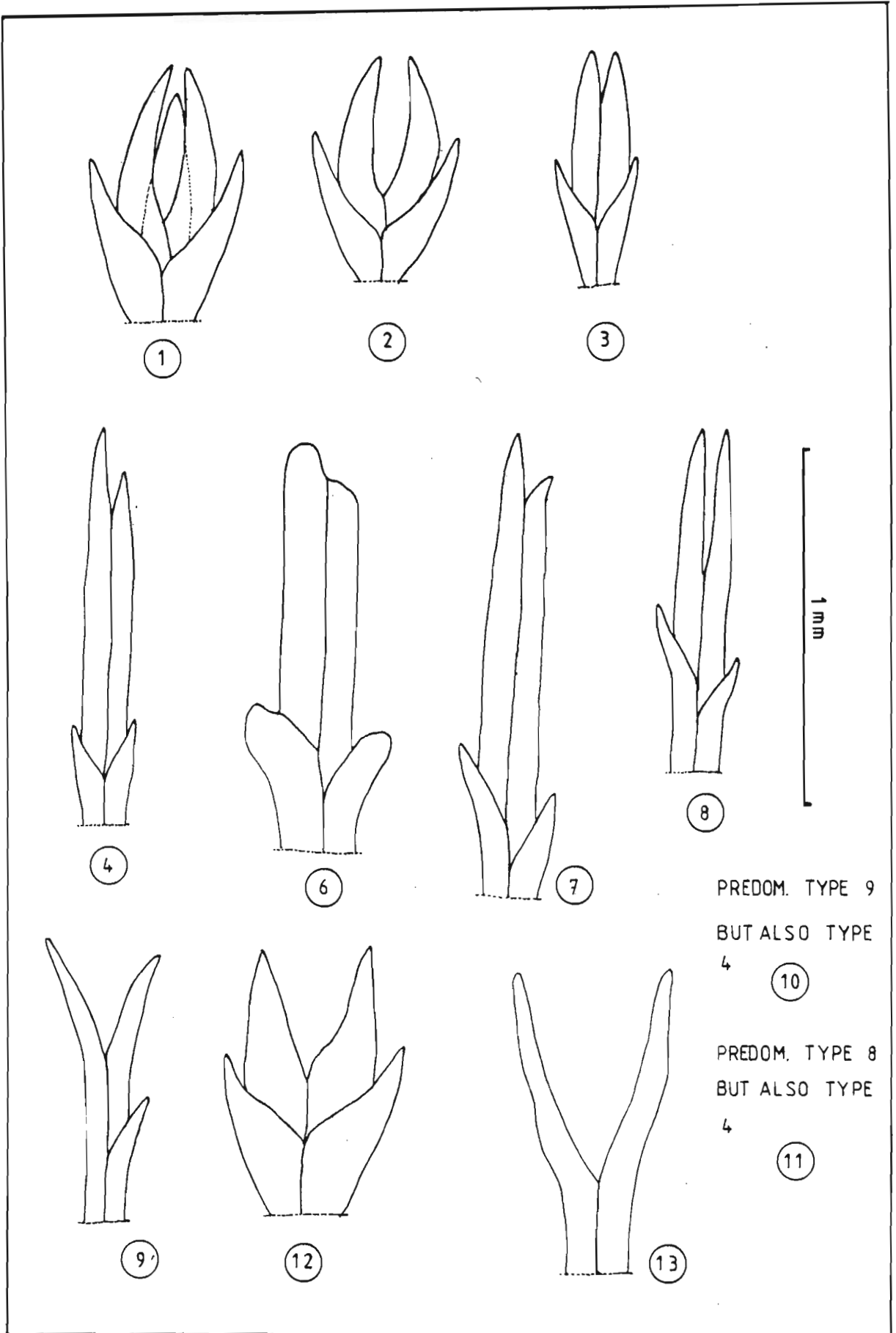
PAPPUS SETAE (DISC): APPEARANCE
(CHAR 127)

- 01 Pappus hairs noticeably barbed; barb frequency decreasing towards the apex; cells not very long (many 'internodes').
- 02 Pappus hairs not noticeably barbed; barb frequency decreasing towards the apex; cell length increasing towards the apex.
- 03 Pappus hairs not noticeably barbed; uniform frequency of barbellation.
- 04 Pappus hairs noticeably barbed; barb frequency decreasing towards the apex; cell length increasing towards apex.
- 06 Broad pappus hairs not noticeably barbed, barb frequency decreasing towards apex;
Narrow pappus hairs very similar to broad hairs, but narrower and fewer barbs at nodes.
- 07 Pappus hairs noticeably barbed, with uniform frequency of barbellation; broad and narrow hairs; barbs have a characteristic deltoid shape; narrow hairs similar to broad hairs but narrower (very copious, fine and silky; exerted far beyond the involucre of the fruiting capitulum).
- 08 Broad and narrow hairs; noticeably barbed; barb frequency decreasing towards apices (fine and silky, very copious, exerted well beyond the involucre of the fruiting capitulum).
- 09 Broad and narrow pappus hairs; noticeably barbed; barb frequency decreasing towards apex; narrow hairs have fewer barbs at the nodes.
- 10 Broad pappus hairs noticeably barbed; barb density decreasing towards apex; Narrow pappus hairs not noticeably barbed and fewer barbs at nodes.
- 12 Types 6 and 9 occur.
- 13 Predominantly type 2, but type 1 also occurs.
- 14 Noticeably barbed near the base, much less so towards the apex.
-

PAPPUS SETAE (DISC): DISTAL CELL NUMBER (CHAR 128)

- 2 Two distal cells (apex).
- 3 Three distal cells (apex).
-

PAPPUS SETAE (DISC) : APEX (CHAR 129)



APPENDIX A continued

**THE FOLLOWING ARE INADMISSIBLE
CHARACTERS**

ALTITUDE RANGE (CHAR 005)

- 01 Near sea level to c. 2100 m.
- 02 Near sea level to c. 1200 m.
- 03 c. 1050 - 5000 m above sea level.
- 04 c. 400 m above sea level (rare species).
- 05 c. 800 m - 1800 m above sea level.
- 06 c. 500 m - c. 1600 m (more at the higher altitude).
- 07 c. 1600 m to c. 1830 m (not well known).
- 08 c. 1200 - c. 2050 m above sea level.
- 09 Near sea level to c. 750 m.
- 10 c. 600 - 2500 m above sea level (in Natal).
- 11 c. 600 m - 3000 m above sea level.
- 12 In Natal c. 1550- 2200 m above sea level.
- 13 Port Shepstone district.
- 14 In Natal, mainly between 1500 & 2750 m above sea level, but has been recorded as low as 600 m on Inanda Mt.
- 15 500 - 2500 m, throughout Natal.
- 16 Not specified or as yet unknown.
- 17 Between c. 150 and 1050 m above sea level
- 18 Between 1000 and 2000 m above sea level.
- 19 In Natal between c. 1200 and 2130 m.
- 20 c. 760 - c. 2500 m (in Natal).
- 21 Below 500 m above sea level.
- 22 c. 600 - 3000 m but mostly above 1200 m.
- 23 In Natal - above 1200 m.
- 24 c. 1600 - 2800 m above sea level.
- 25 Coastal - at sea level (within reach of sea spray).
- 26 In Natal, from sea level to c. 1500 m.
- 27 In Natal, between 1400 and 3000 m above sea level.
- 28 In Natal, between 1400 and 2850 m above sea level.
- 29 In Natal, below 900m above sea level
- 30 In Natal, between 1200 and 1400 m above sea level.
- 31 Up to c. 900 m above sea level.
- 32 Sea level to c. 1500 m.
- 34 In Natal, above c. 2300 m.
- 35 c. 1200 - 1700 m above sea level.
- 36 c. 1850 - 2500 m above sea level.
- 37 Up to 350 m above sea level.
- 38 In Natal between 1450 and 1850 m.
- 39 in Natal between 2300 and 3200 m.

APPENDIX A continued

- 40 In Natal between 650 and 2250 m, but commoner above 1200 m.
 41 In Natal from c. 1800 to 2250 m, but commoner above 1500 m.
 42 Predominantly between 1800 and 2250 m, but records from c. 1700 m and c. 650 m.
 43 In Natal, between 2500 and 3500 m.
 44 In Natal, between 600 and 1700 m.
 45 c. 1675 - 2440 m above sea level.
 46 Around 2865 m.
 47 In Natal, between 1060 and 2250 m.
 48 Up to 550 m above sea level.
 49 In Natal from near sea level to c. 3000 m.
 50 In Natal from near sea level to c. 2300 m.
 51 In Natal, between 1800 and 2800 m above sea level.
 52 In Natal, between 1300 and 2200 m above sea level.
 54 In Natal, not recorded above c. 800 m south of the Tugela, but up to c. 1200 m in Zululand and N. Natal.
 55 c. 700 - c. 1700 m above sea level.
 56 In Natal, up to c. 700 m above sea level.
 57 c. 1500 - 2400 m above sea level.
 58 In Natal, between c. 1800 and 1900 m above sea level.
 59 In Natal, from near sea level to c. 1700 m above sea level.
 60 In Natal, between 900 m and 3000 m above sea level.
 61 Between 2130 and 3170 m above sea level.

DISTRIBUTION (CHAR 006)

- 001 In Port St. Johns through Natal to mountains of the E. Tvl. and neighbouring Swaziland mountains.
 002 Recorded only from Natal; relatively rare.
 003 Ranges from S.E. part of Transvaal highveld to Newcastle, Dundee, Helpmekaar and Klipriver districts.
 004 From Cape Peninsula eastwards through the coastal districts, rare in Natal (recorded only from Umtwalumi).
 005 From Umzimkulu district in Transkei on Natal Border through Natal to the Transvaal Drakensberg and neighbouring Swaziland and the Zoutpansberg.
 006 Widely distributed, from Madagascar and the Mascarene Islands through coastal Mocambique to Natal, the Transkei and eastern and southern Cape about as far west as the Uniondale district. (weed of cultiv. in the Tvl.). Found throughout Natal.
 007 Recorded from near Bizana in Pondoland and in nearby Ngeli Mountain and the Zuurberg on the Cape Natal Border; then a great jump to Qudeni forest in Zululand.
 008 Polela district, Bulwer (Mawahqua Mountain).
 009 Port St. Johns in Transkei to Hlabisa district in Natal and inland to about 1400 m; also in Mbabane, Swaziland.
 010 Recorded mainly from Natal (1200 - 2050 m) and neighbouring mountainous parts of the O.F.S. and Lesotho; also in the Barberton mountains, S.E. Tvl.
 011 From the Cape Peninsula eastwards through the Cape coastal districts to the Transkei, Natal, the eastern Transvaal, Swaziland and

APPENDIX A continued

Mocambique.

- 012 From about Alexandria and Grahamstown in the E. Cape to Natal and the Eastern Transvaal.
- 013 Ranges from the Amatola Mountains through the eastern Cape, East Griqualand, Transkei and Natal to the mountains of the eastern Tvl. and nearby Swaziland. Also in Lesotho.
- 014 Ranges from about Molteno in the N.E. Cape to Lesotho, East Griqualand and southern Natal, where it has been recorded only from Mawahqua mountain and Thomathu Pass, Bushman's neck, in the Underberg district.
- 015 Known only from the Port Shepstone district.
- 016 Ranges from the Cape Peninsula east to Humansdorp, Port Elizabeth and Albany and Natal (Garden Castle Nature Reserve, Underberg).
- 017 In Natal; along the Drakensberg and its foothills but also recorded on Inanda mountain.
- 018 Ranges from the eastern Cape, through the Transkei, throughout Natal, through the eastern transvaal and Swaziland.
- 019 Natal endemic; known only from Newcastle, Uryheid, Ngotshe, Klipriver and Dundee districts.
- 020 Known only from Pondoland (that part of the Transkei immediately south of the Natal Border) and southern Natal in Port Shepstone, Alfred, Ixopo and Umsinto districts.
- 021 Common in the coastal area from East London to Ingwavuma district on the Natal-Mocambique border.
- 022 Known only from Natal.
- 023 Mainly in the Transvaal highveld and eastern highlands, descends the low Drakensberg into Natal (Van Reenen) then along the mountains to Utrecht and Paulpietersberg districts.
- 024 Mountainous regions of the Transkei, East Griqualand, Natal parts of the O.F.S., Lesotho and the eastern Transvaal.
- 025 Ranges from Cathcart in the eastern Cape north-eastwards through the Transkei and East Griqualand to Natal where it is widely distributed; also recorded from around Harrismith in the O.F.S. and Leribe in Lesotho.
- 026 In the Zululand-Mocambique coastal plain (Ngoye forest).
- 027 Widely distributed from the highlands of Angola, Zambia and Zimbabwe to the Transvaal highveld and mountainous areas, Swaziland, Natal, Lesotho (Sani Top) the O.F.S. around Harrismith, the Transkei and eastern Cape about as far south as Queenstown and East London.
- 028 From about Belfast in the S. Eastern Transvaal and around Harrismith in the O.F.S. through Natal and east Griqualand to the Amatola Mountains in the eastern Cape; also in Lesotho (Gachas nek, Mokhotlong, Oxbow).
- 029 Ranges along the Natal-Cape Drakensberg from about the Cathkin area to Naudes Nek between Maclear and Rhodes, through the mountains of East Griqualand and the Transkei to the Amatola mountains.
- 030 Along the seashore from Madagascar and Mocambique as far south as Humansdorp
- 031 Ranges from about Port St. Johns through Natal to the mountains of the Eastern Transvaal and Swaziland as far north as the Zoutpansberg (also in Mocambique, both on the coastal plain and the Lebombo

APPENDIX A continued

- mountains).
- 032 Found on the mountains of the E. and N.E. Cape from about Lady Grey and Queenstown through East Griqualand, Lesotho and neighbouring parts of the O.F.S. to Wakkerstroom on the Transvaal-Natal border, and in the more elevated parts of Natal (between 1400 and 3000 m above sea level).
- 033 Widespread in the Cape (except the S.W. region), Botswana, the O.F.S. and the Transvaal highveld, Natal (c. 1400-2850 m); also in South West Africa.
- 034 Found in the eastern parts of the Transkei and just enters Natal across its southern border - Weza, Zuurberg, Harding district.
- 035 Confined to the eastern and north eastern Cape, East Griqualand and the hinterland of the Transkei - just reaches Natal - once recorded, 100 m from the Transkei border.
- 036 Ranges from Uniondale district (3323 CA), eastwards through the coastal districts to Natal about as far north as Mapumulo.
- 037 Widespread, from the Cape Peninsula and S.W. Cape north-east and east to Graaf Reinet and Albany districts thence along the mountains (but not recorded from the Amatolas) to Lesotho, the high parts of the O.F.S., and Natal.
- 038 Ranges from Lions River, Impendhle, Polela, Underberg, Ixopo and Alfred districts in southern Natal through neighbouring East Griqualand and the Transkei as far south as Engcobo mountain.
- 039 On the high Drakensberg from Naudes Nek, between Maclear and Rhodes, to the Cathedral Peak area, and on Ngeli mountain.
- 040 Along the Natal coast from Ngoye forest near Eshowe to the Umsikaba river in Pondoland (about 50 km south of the Natal border).
- 041 Widespread in the eastern part of the O.F.S. (above 1300 m) and Lesotho, the Transvaal highveld and the eastern Transvaal highlands, also in Northern Natal and recorded as far south as the Estcourt district.
- 042 Ranges from S.W.A. and the northern Cape to the O.F.S. and the Transvaal highveld (bordering into Northern Natal, Newcastle, Utrecht districts).
- 043 Victoria West, Cradock and Grahamstown through the Cape mountains to about Kokstad in East Griqualand, Lesotho, the O.F.S. and Heidelberg on the Transvaal highveld (not recorded from Natal but occurs in closely neighbouring territory).
- 044 From the mountains west and north of Somerset East (Bruintjeshoogte and the Great Winterberg) across the mountains to the Cape Drakensberg near Barkly East and the mountains of East Griqualand, and so along the high Drakensberg on the Cape-Lesotho-Natal border and on the Lesotho mountains.
- 045 Ranges from Estcourt and Bergville districts in Natal and the nearby Witzieshoek area of the O.F.S. to the eastern highlands of the Transvaal as far north as Woodbush.
- 046 Recorded from Underberg, Lions River and Estcourt districts in Natal and Forbes Reef in Swaziland.
- 047 Ranges from about Grahamstown through the eastern Cape and Transkei to Natal, the Transvaal and the O.F.S. (Bethlehem district).
- 048 Transvaal highveld, Drakensberg foothills and Natal midlands to

APPENDIX A continued

- Swaziland
- 049 Recorded from the Katberg in the Amatola mountains, eastern Cape, and nearby Cathcart, then Tabankula Mt. and Mt. Currie just south of the Natal border, relatively widespread in Natal (commonest above 1500 m along the Drakensberg and its outliers as far north as Van Reenen) (typical plant only recorded from the Natal Drakensberg between Bushmans' Nek and Ngeli Mt. in the south of Cathedral Peak in the North.
- 050 Small area in Natal Drakensberg, from Giant's Castle to Mount aux Sources; also recorded outside Kokstad and from Baziya, Engcobo district.
- 051 Widespread from Humansdorp in the southern Cape through the eastern and north eastern Cape, Transkei, Natal Swaziland, Transvaal highveld and eastern highlands to the highlands of Zimbabwe, Malawi, Tanzania, also in Botswana, Angola and the Lebombo Mountains in Mocambique. Widespread in Natal.
- 052 Ranges from the Wittenberg and the Cape Drakensberg about Barkly East and nearby Baziya Mountains along the high Drakensberg to the Oxbow area in Lesotho.
- 053 Ranges from Katberg, the Amatolas and the mountains about Kingwilliamstown in the eastern Cape through the Transkei and East Griqualand to Natal and the highlands of the eastern Transvaal about as far north as Woodbush.
- 054 On the high Drakensberg, southern Drakensberg to Giants Castle.
- 055 Known only from Sani Pass (at the summit).
- 056 Ranges from about the Amatola Mts. through the Transkei to Natal and as Wakkerstroom district on the Natal-Transvaal border.
- 057 Ranges from Uitenhage eastwards along the coast and inland around Grahamstown and the Amatola Mts. thence through the Transkei to Natal as far as Inanda and Mappumula districts.
- 058 Ranging from the Sneeuwberg near Graaf Reinet and Boschberg near Somerset East, through the eastern and north-eastern Cape, East Griqualand, the Transkei and Natal, to the Transvaal highveld and eastern highlands, the eastern highlands of Zimbabwe, Malawi and neighbouring Tanzania.
- 059 Ranging from Humansdorp in the southern Cape through the E. Cape, Transkei and E. Griqualand to the highlands of the E. Transvaal and the Magaliesberg, the E. highlands of Zimbabwe and in the Mts. of Malawi and Mbeya district in Tanzania.
- 060 Recorded from the Uniondale district in the S.Cape and Grahamstown further east, then the higher parts of Natal and mountainous parts of the O.F.S. and Lesotho, then the Blaauwberg in the N.W. Transvaal.
- 061 From Humansdorp, Uitenhage and Grahamstown, north east to Queenstown and the Amatolas, then a gap to Insizwa Mt., Kokstad and nearby Ngeli Mt. on the Cape-Natal border, then along the Drakensberg to the Transvaal highveld, the O.F.S. around Harrismith, Bethlehem and Frankfurt and Lesotho.
- 062 Along the Natal Drakensberg between Giant's Castle Game Reserve and Underberg district.
- 063 East London through the more coastal districts to Natal, Swaziland

APPENDIX A continued

- and Piet Retief district in the Transvaal.
- 064 Northern Natal and Zululand.
- 065 Along the Drakensberg and its outliers from about Ramatseiso's Gate north of Matatiele in East Griqualand, Tabankulu Mt. in the Transkei and nearby Ngeli Mt. on the Cape-Natal border, to the low Drakensberg in Utrecht district, then to the Witwatersrand, Magaliesberg, the highlands of the E. Transvaal and Swaziland.
- 066 From about Barkly Pass in the E. Cape and Kokstad in E. Griqualand through Natal to the E. Highlands of the Transvaal (and Swaziland) about as far north as Graskop, also in the E. Highlands of the O.F.S. and neighbouring parts of Lesotho.
- 067 Ranges from about East London through the eastern parts of the Transkei to Natal, the E. highlands of the Transvaal and neighbouring Swaziland, the Zoutpansberg and Blaauwberg, the central and E. highlands of Zimbabwe, and the Shire highlands in Malawi. Also in Mocambique and Angola (Huilla).
- 068 Ranges from about Uitenhage through the eastern Cape, Transkei and East Griqualand to Natal, where it is found as far north as Bergville, Klip River and New Hanover districts.
- 069 From about Keiskammahoeck and Komgha in the eastern Cape through the more coastal districts to the Lebombo Mts. in Zululand. Also recorded from Mbabane, Hlatikulu and Manzini in Swaziland, and Duiwels Kloof, N. Transvaal.
- 070 Ranges from about Komgha and Queenstown in the eastern Cape to Natal and the eastern highlands of the Transvaal.
- 071 Ranges from Baziya near Engcobo in the central Transkei to Natal, Swaziland and the highlands of the eastern Transvaal.
- 072 Known only from the Natal Drakensberg, from Tugela gorge (Bergville district) to Bushman's Nek near Natal's southern border.
- 073 Recorded only from Natal, from the Lebombo Mts., near Jozini to the Umtamvuma river on the Natal-Transkei border.
- 074 From Zimbabwe and Mocambique through the Transvaal lowveld, as far west as the Blaauwberg in the north and Brits and Ventersdorp in the south, and the Swaziland lowveld to Ingwavuma, Ubombo, Ngotshe and Hlabisa districts in Natal.
- 075 From the Tugela valley below Kranskop through the dry thorn scrub areas to the Transvaal and Swaziland lowveld as far north as the Zoutpansberg. Also in Mocambique.
- 076 Widespread but not very common, from Angola and the eastern highlands of Zimbabwe to the Transvaal lowveld and the Lebombo Mts., thence entering Natal, where it is found as far south as Umlaas near Durban.
- 077 Ranges from about the Zuurberg and Uitenhage in the E. Cape, through the Transkei and Natal to Swaziland and Mocambique.
- 078 Ranges from Pietermaritzburg through the Umgeni and Tugela valleys to Hluhluwe and Ndumu, on to Lourenco Marques district in Mocambique and through the Transvaal and Swaziland lowveld. Also recorded from the Kaokoveld (c. 14° E, 18° 30' S) in S.W.A.
- 079 Widespread, from the Cape Peninsula through the southern and eastern Cape to Natal as far north as Nkandla, Nhlazasthe Mt. and the Biggarsberg north of Ladysmith. Also recorded from Mhaleshoek in

APPENDIX A continued

- Lesotho.
- 080 Widespread from about Swellendam in the S.W. Cape through the southern and eastern Cape and Transkei to Natal, the eastern Transvaal and Zoutpansberg Swaziland, Mocambique, the eastern highlands of Zimbabwe and the Shire highlands in Malawi.
- 081 Ranges from about Keiskammahoek and Kingwilliamstown in the E. Cape, through the Transkei to Natal, the E. Transvaal, Swaziland and the eastern highlands of Zimbabwe.
- 082 Ranges from about Bathurst and Port Alfred in the E. Cape through the coastal districts to Delagoa Bay in Mocambique and to the E. highlands of the Transvaal, the Zoutpansberg and Swaziland. Also recorded from Salisbury (Harare) district in Zimbabwe and from Madagascar.
- 083 Ranges from the E. highlands of Zimbabwe through the Zoutpansberg and the mountains of the E. Transvaal to Natal, the Transkei and the E. Cape as far south as the Amatola Mts. and the Pirie.
- 084 Ranges from Laingsburg division in the southern Cape east through the Mts. of the Karoo to the Sneeuwberg north of Graaf Reinet and the Amatola Mts. near Kingwilliamstown, then north-east to East Griqualand, the O.F.S., Natal and the Transvaal highveld and eastern highlands. Also in Lesotho.
- 085 From the Sneeuwberg north of Graaf Reinet and the Mts. around Somerset East north-east along the mountains to Lesotho and neighbouring parts of the O.F.S. and East Griqualand; seemingly rare in Natal - recorded only at the foot of Mont aux Sources and on the farm "Naauwhoek", Utrecht district.
- 086 On the high Drakensberg from about Naude's Nek, north of Maclear in East Griqualand, to Mont aux sources and the high Lesotho Mts. Also on Ngeli Mt., a Drakensberg outlier on the Cape-Natal border.
- 087 Widespread from Saldanha Bay through the Karoo and dry parts of the southern and eastern Cape to the O.F.S. and the Western Transvaal. Also recorded from Quthing in Lesotho (records for Natal, Muden Valley and near Greytown).
- 088 Through the Transvaal and Swaziland lowveld and along the Lebombo Mts. into northern Zululand, where it gets as far south as the heights above MKuze village.
- 089 Cape (heterochromous non-yellow (purple)).
- 090 Europe and the United Kingdom.
- 091 U.S.A.
- 092 Middle East, North Africa, Eastern Europe.
- 093 Madagascar.
- 094 Australia.
- 095 Tropical Africa.
- 096 Asia
- 097 North West Africa (Canary Is.)
- 098 Southern Natal Drakensberg
- 099 Cape Peninsula
- 100 South America - Argentina
-

APPENDIX A continued

HABITATS (CHAR 007)

- 01 Grassland (open).
- 02 Grassland, often among rock outcrops or in the crevices of rock sheets.
- 03 Mainly along stramsides and similar moist structures.
- 04 Forest-margin scrub or damp marshy hollows/streambanks.
- 05 Gardens, fields roadsides and generally in waste places.
- 06 Along streamsides and on damp banks in forest.
- 07 Rank growth on forest margins and along streams.
- 08 Grassland, particularly among rock outcrops on hillslopes (socially).
- 09 Rocky, grassy mountain slopes (socially).
- 10 Favours damp situations; in the S.W. Cape, found in sheltered mountain kloofs, further east and north, in damp grassland, often in marshy depressions.
- 11 Open grassland, and at low altitudes may be found in marshy depressions and damp grassland (i.e., similar to S. speciosus).
- 12 Sandy soil or rubble or among rock outcrops, in East Griqualand; sometimes established as a weed on roadsides.
- 13 Grassland, often near forest margins.
- 14 Rank growth on forest margins.
- 15 Short stony grassland (social).
- 16 Grassland, usually in damp or even wet places.
- 17 Marshy depressions in grassland (Zululand-Mocambique coastal plain) or, at Ngoye forest (E. of Eshowe) in marshy places on the great granite domes.
- 18 Marshy streamsides, in marshes or in seasonally waterlogged grassland.
- 19 Damp grassy hollows and gullies on the mountain slopes.
- 20 Sand within reach of salt spray of the sea.
- 21 Forest margins, but is a successful weed along roadsides and in old fields and felled plantations.
- 22 In Natal - among rock outcrops on steep, moist, grassy mountain slopes and along rocky water courses - often becomes a weed along roadsides or firebreaks or in trampled or otherwise disturbed areas.
- 23 Favours forest margins.
- 24 A weed of bare open places such as pathsides and roadsides through grassland.
- 25 Along roadsides and in disturbed grassland.
- 26 Grows on rubble slopes, in the crevices of cliffs or under the shelter of outcropping rocks.
- 27 Grassland, often steep slopes and adjacent to forest patches.
- 28 Damp or marshy montane grassland or along streamsides
- 29 Grows socially in poor grassland and among rocks, often becoming a weed along roadsides.
- 30 Favours river banks but also roadsides and cultivated lands.
- 31 Grows socially in poor stony soil, readily becoming a roadside weed.
- 32 Grows socially on rocky grassy mountain slopes
- 33 Grows in open grassland, often in damp situations.
- 34 Marshy places.

APPENDIX A continued

- 35 Grows socially in open grassland, often on poor stony soils.
 - 36 Grows socially on damp grassy mountain slopes or on soil hummocks in marshes.
 - 37 Grows socially on grassy streamsides or in moist grassy gullies down the Mountain slopes.
 - 38 Grows on steep damp mountain slopes, either grass or scree, often in large colonies.
 - 39 Grows in marshy ground or on soil hummocks in marshes, sometimes in running water.
 - 40 Montane turf - rich and black, foot of cave sandstone cliffs (Sani Pass).
 - 41 Grassland, growing socially.
 - 42 Grassland, growing gregariously.
 - 43 Rocky outcrops or on the margins of scrubby growth.
 - 44 Grassland, often on steep slopes and among rock outcrops.
 - 45 Growing among boulders on the edges of rocky streambeds, or on boulder beds in streams, sometimes submerged by floodwater.
 - 46 Growing in grassland or open woodland, often on poor or disturbed soils.
 - 47 Grassland or open woodland.
 - 48 Forest margin scrub.
 - 49 Rocky watercourses and in shrub communities on mountain slopes.
 - 50 Scrubby growth on cliff-edges, particularly above river gorges, and on the big granite outcrops in the Port Shepstone district.
 - 51 Rather dry sandy areas among rock outcrops or clambering over trees and bushes in sand-dune forest.
 - 52 Dry thorn scrub and sandveld woodland.
 - 53 Hot, dry river valley woodland and scrub, growing mainly on rocky ledges of cliffs and steep rocky slopes, sometimes lightly shaded or growing on the floor of the Tongaland sand-dune forests (and nearby Maputo in Mocambique).
 - 54 Clambering on the margins of coast forest and penetrating inland up the dry valleys (where is may smother small trees).
 - 55 Forest margins and in forests.
 - 56 Forest margins or in scrub or woodlands often in rather dry situations.
 - 57 Forests.
 - 58 Grows in rocky streambeds and along streambanks, rooted in rock crevices, the stems sometimes trailing in shallow water, or in damp hollows or over rocks oozing water (-often forming dense mats).
 - 59 (Cascades down) Cliff faces or sprawls over rock sheets.
 - 60 Cliff faces or sprawled over rock sheets or in the crevices of rock sheets.
 - 61 Favours dry scrub country, bare stony ground (forming mats).
 - 62 Poor stony or sandy soils, often becoming a weed along road verges.
-

APPENDIX A continued

FLOWERING TIME (CHAR 130)

- 01 August to February, mainly in January.
 - 02 March.
 - 03 November to January.
 - 04 October.
 - 05 Predominantly March and April, but also as early as December.
 - 06 In any month.
 - 07 Mainly in December and January.
 - 08 January.
 - 09 Mainly August to December, but flowers can be found in any month.
 - 10 January to April, but mainly in March.
 - 11 Mainly from July to January, but can be found in any month.
 - 12 Mainly from September to December, but can be found in any month
(often after burning in Spring).
 - 13 Between November and February.
 - 14 October (occ. November) - little known.
 - 15 December to February.
 - 16 Mainly between August and December.
 - 17 Between August and October.
 - 18 October to December.
 - 19 September to December.
 - 20 November to March.
 - 21 October to January.
 - 22 November and December (predom.).
 - 23 Mainly from October to February, but can be found in flower in any
month.
 - 24 In any month, but mainly in September and October.
 - 25 Mainly in September and October.
 - 26 February to April.
 - 27 November to February.
 - 28 December to March.
 - 29 Between August and November.
 - 30 September to November.
 - 31 December to April.
 - 32 Mainly in January and February.
 - 33 Mainly in December and January.
 - 34 Mainly in December.
 - 35 Mainly between August and November.
 - 36 Between August and April.
 - 37 September to January.
 - 38 March and April.
 - 39 September to March.
 - 40 March to May.
 - 41 May to December.
 - 42 Mainly in June and July.
 - 43 August to September.
 - 44 January to August.
 - 45 April to July.
 - 46 December to July.
 - 47 April to June.
 - 48 Mainly April and May.
 - 49 July and August.
 - 50 January to April.
 - 51 February and March.
 - 52 April and May.
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APPENDIX B**[MASTER DATA MATRIX]**

The numerical values in this matrix correspond to the relevant character states of the character concerned.

See Appendix A for a description of the character states for all the characters investigated

IDENTIFICATION :

	SE001	SE002	SE003	SE004	SE005	SE006	SE007	SE009	SE010	SE014
CHAR 005	32.	25.	28.	27.	26.	29.	30.	56.	16.	44.
CHAR 006	6.	30.	33.	32.	31.	34.	35.	69.	70.	71.
CHAR 007	5.	20.	22.	1.	21.	23.	24.	47.	1.	48.
CHAR 008	1.	8.	9.	9.	10.	10.	11.	1.	1.	4.
CHAR 009	1.	0.	0.	0.	0.	0.	0.	26.	26.	11.
CHAR 010	300.	0.	1000.	1000.	1800.	1800.	1000.	1000.	1200.	2400.
CHAR 011	1.	1.	1.	1.	1.	1.	1.	23.	23.	23.
CHAR 012	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.
CHAR 013	120.	100.	100.	100.	150.	150.	150.	120.	70.	220.
CHAR 014	999.	999.	999.	999.	999.	999.	999.	999.	999.	999.
CHAR 015	25.	20.	10.	10.	40.	40.	40.	25.	25.	110.
CHAR 016	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 017	6.	29.	29.	29.	30.	30.	30.	58.	59.	60.
CHAR 018	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 019	6.	12.	6.	6.	1.	6.	6.	6.	6.	6.
CHAR 020	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 021	7.	27.	28.	28.	29.	29.	29.	61.	62.	63.
CHAR 022	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 023	4.	21.	22.	22.	23.	23.	23.	40.	40.	41.
CHAR 024	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 025	1.	1.	1.	1.	1.	1.	1.	13.	14.	15.
CHAR 026	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 027	5.	21.	22.	22.	23.	23.	23.	2.	27.	2.
CHAR 028	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 029	6.	20.	21.	21.	22.	22.	22.	38.	38.	39.
CHAR 030	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 031	6.	23.	22.	5.	20.	20.	20.	32.	6.	8.
CHAR 032	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 033	6.	23.	7.	6.	21.	21.	21.	32.	6.	31.
CHAR 034	5.	3.	5.	10.	13.	13.	13.	3.	1.	19.
CHAR 035	5.	20.	2.	14.	15.	15.	15.	22.	2.	32.
CHAR 036	1.	4.	1.	1.	2.	2.	2.	2.	1.	2.
CHAR 037	2.	4.	2.	2.	1.	1.	1.	7.	1.	1.
CHAR 038	3.	25.	26.	27.	28.	29.	28.	60.	61.	62.
CHAR 039	5.	23.	19.	19.	21.	20.	21.	9.	18.	41.
CHAR 040	2.	2.	2.	2.	4.	2.	2.	2.	2.	2.
CHAR 041	5.	22.	23.	24.	25.	27.	27.	25.	44.	44.
CHAR 042	2.	1.	3.	1.	1.	4.	6.	4.	1.	1.
CHAR 043	3.	11.	3.	10.	3.	3.	3.	28.	21.	21.
CHAR 044	1.	2.	1.	2.	1.	1.	1.	1.	1.	2.
CHAR 045	2.	3.	2.	2.	2.	2.	2.	2.	1.	2.
CHAR 046	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.
CHAR 047	2.	2.	2.	2.	2.	2.	2.	2.	2.	1.
CHAR 048	5.	19.	20.	20.	21.	21.	22.	42.	43.	44.
CHAR 049	1.	1.	1.	1.	1.	1.	1.	1.	1.	4.
CHAR 050	5.	5.	5.	5.	3.	5.	5.	3.	2.	2.
CHAR 051	3.	3.	3.	3.	7.	2.	2.	2.	2.	3.
CHAR 052	5.	6.	6.	6.	6.	6.	6.	6.	4.	6.
CHAR 053	1.	1.	1.	10.	1.	1.	13.	1.	1.	29.
CHAR 054	99.	99.	99.	14.	99.	99.	15.	99.	99.	15.

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CONTINUATION OF

	SE001	SE002	SE003	SE004	SE005	SE006	SE007	SE009	SE010	SE014
CHAR 055	3.	3.	7.	3.	4.	3.	3.	4.	4.	4.
CHAR 056	3.	4.	3.	4.	4.	1.	1.	1.	1.	1.
CHAR 057	3.	3.	3.	1.	3.	3.	2.	8.	8.	8.
CHAR 058	2.	3.	5.	2.	2.	2.	2.	2.	2.	2.
CHAR 059	3.	3.	5.	6.	4.	4.	5.	3.	2.	3.
CHAR 060	1.	2.	2.	2.	1.	2.	2.	1.	1.	2.
CHAR 061	3.	5.	3.	6.	3.	3.	3.	3.	3.	3.
CHAR 062	6.	15.	15.	14.	21.	21.	17.	26.	5.	40.
CHAR 063	6.	18.	30.	18.	29.	29.	29.	99.	99.	79.
CHAR 064	2.	2.	16.	5.	2.	5.	4.	2.	13.	2.
CHAR 065	2.	6.	1.	6.	3.	3.	2.	2.	2.	2.
CHAR 066	2.	3.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 067	6.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 068	2.	2.	2.	2.	2.	2.	2.	6.	6.	99.
CHAR 069	5.	5.	5.	5.	5.	5.	5.	25.	25.	75.
CHAR 070	4.	4.	4.	4.	2.	4.	4.	4.	2.	99.
CHAR 071	2.	2.	2.	4.	2.	2.	2.	2.	1.	99.
CHAR 072	1.	1.	1.	1.	1.	1.	1.	1.	1.	99.
CHAR 073	2.	2.	2.	1.	2.	1.	2.	2.	2.	99.
CHAR 074	2.	2.	2.	2.	2.	2.	5.	10.	10.	99.
CHAR 075	1.	1.	1.	1.	1.	1.	1.	2.	1.	99.
CHAR 076	2.	2.	2.	2.	2.	3.	3.	2.	2.	99.
CHAR 077	2.	2.	2.	2.	2.	2.	2.	2.	2.	99.
CHAR 078	6.	6.	6.	6.	6.	6.	6.	5.	11.	99.
CHAR 079	1.	1.	1.	1.	1.	1.	1.	3.	3.	99.
CHAR 080	4.	4.	4.	4.	3.	3.	3.	2.	2.	2.
CHAR 081	2.	2.	1.	2.	2.	2.	2.	2.	2.	2.
CHAR 082	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 083	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 084	6.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 085	1.	2.	2.	2.	1.	1.	1.	6.	6.	2.
CHAR 086	2.	2.	2.	2.	2.	2.	7.	7.	7.	7.
CHAR 087	1.	1.	1.	1.	1.	1.	1.	1.	1.	99.
CHAR 088	2.	2.	2.	2.	2.	2.	2.	2.	2.	99.
CHAR 089	1.	1.	1.	1.	1.	1.	1.	1.	1.	99.
CHAR 090	3.	3.	3.	3.	3.	3.	3.	3.	3.	99.
CHAR 091	2.	3.	3.	3.	3.	2.	2.	3.	3.	99.
CHAR 092	3.	6.	7.	8.	9.	9.	9.	1.	1.	99.
CHAR 093	2.	2.	5.	5.	2.	5.	5.	6.	6.	99.
CHAR 094	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 095	9.	9.	9.	9.	9.	9.	9.	9.	9.	9.
CHAR 096	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 097	5.	5.	5.	5.	5.	5.	5.	3.	5.	5.
CHAR 098	3.	3.	3.	3.	3.	3.	3.	6.	6.	3.
CHAR 099	5.	8.	18.	19.	20.	20.	20.	1.	1.	1.
CHAR 100	6.	8.	8.	7.	7.	12.	8.	1.	1.	1.
CHAR 101	4.	7.	2.	10.	11.	17.	3.	4.	2.	3.
CHAR 102	5.	9.	10.	8.	4.	3.	3.	3.	2.	5.
CHAR 103	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 104	2.	2.	2.	2.	2.	2.	2.	4.	4.	2.

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CONTINUATION OF

	SE001	SE002	SE003	SE004	SE005	SE006	SE007	SE009	SE010	SE014
CHAR 105	1.	1.	1.	2.	1.	1.	2.	2.	2.	3.
CHAR 106	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 107	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.
CHAR 108	2.	2.	2.	2.	1.	1.	2.	2.	2.	2.
CHAR 109	2.	2.	1.	2.	2.	2.	2.	1.	2.	2.
CHAR 110	1.	1.	1.	1.	1.	6.	1.	2.	3.	2.
CHAR 111	1.	2.	1.	1.	1.	1.	1.	1.	2.	99
CHAR 112	1.	1.	1.	1.	1.	1.	1.	2.	1.	99
CHAR 113	6.	6.	6.	6.	5.	3.	9.	1.	1.	99
CHAR 114	2.	5.	7.	8.	9.	9.	9.	1.	1.	99
CHAR 115	3.	3.	6.	3.	4.	3.	7.	1.	2.	4.
CHAR 116	1.	2.	1.	2.	1.	1.	1.	2.	2.	2.
CHAR 117	2.	1.	2.	2.	2.	2.	2.	2.	2.	7.
CHAR 118	7.	7.	7.	7.	9.	11.	6.	7.	7.	7.
CHAR 119	4.	14.	14.	16.	17.	17.	17.	1.	1.	1.
CHAR 120	5.	5.	7.	11.	11.	11.	11.	1.	1.	5.
CHAR 121	2.	2.	2.	2.	2.	2.	2.	1.	2.	2.
CHAR 122	2.	1.	2.	2.	2.	2.	2.	2.	2.	99
CHAR 123	3.	5.	5.	4.	5.	5.	4.	9.	2.	99
CHAR 124	2.	2.	2.	2.	2.	2.	2.	2.	2.	9.
CHAR 125	4.	6.	7.	3.	4.	4.	4.	5.	6.	99
CHAR 126	2.	2.	2.	2.	2.	2.	2.	2.	2.	3.
CHAR 127	6.	10.	10.	6.	10.	10.	6.	2.	6.	10.
CHAR 128	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 129	4.	8.	4.	4.	4.	4.	4.	4.	8.	8.
CHAR 130	60.	6.	23.	23.	24.	24.	3.	40.	19.	40.

IDENTIFICATION:

PAGE 4

	SE015	SE016	SE017	SE018	SE020	SE022	SE023	SE24A	SE24B	SE24C
CHAR 005	60.	16.	61.	57.	48.	4.	5.	16.	15.	13.
CHAR 006	85.	85.	86.	72.	73.	4.	5.	16.	18.	15.
CHAR 007	58.	59.	60.	49.	50.	3.	4.	1.	1.	1.
CHAR 008	14.	14.	22.	1.	14.	2.	2.	1.	1.	1.
CHAR 009	0.	0.	0.	11.	0.	0.	0.	8.	8.	7.
CHAR 010	9999.	9999.	9999.	1000.	1500.	1500.	2000.	600.	700.	700.
CHAR 011	1.	1.	1.	21.	1.	2.	1.	8.	15.	7.
CHAR 012	9999.	9999.	9999.	9999.	9999.	450.	9999.	100.	200.	40.
CHAR 013	40.	30.	30.	60.	60.	450.	110.	50.	140.	40.
CHAR 014	999.	999.	999.	999.	999.	10.	999.	30.	60.	10.
CHAR 015	8.	8.	8.	25.	30.	10.	50.	10.	20.	10.
CHAR 016	99.	99.	99.	99.	99.	3.	99.	13.	22.	12.
CHAR 017	71.	72.	72.	61.	62.	3.	5.	15.	32.	14.
CHAR 018	99.	99.	99.	99.	99.	4.	99.	10.	13.	9.
CHAR 019	99.	99.	99.	6.	21.	4.	1.	6.	10.	10.
CHAR 020	99.	99.	99.	99.	99.	4.	99.	13.	12.	12.
CHAR 021	73.	15.	15.	64.	65.	4.	5.	17.	16.	16.
CHAR 022	99.	99.	99.	99.	99.	1.	99.	7.	8.	8.
CHAR 023	52.	53.	53.	42.	43.	3.	1.	14.	13.	13.
CHAR 024	99.	99.	99.	99.	99.	2.	99.	6.	6.	5.
CHAR 025	6.	6.	6.	5.	6.	2.	2.	7.	7.	6.
CHAR 026	99.	99.	99.	99.	99.	2.	99.	10.	9.	9.
CHAR 027	46.	2.	47.	27.	39.	2.	3.	14.	13.	13.
CHAR 028	99.	99.	99.	99.	99.	3.	99.	5.	7.	7.
CHAR 029	41.	42.	42.	40.	38.	4.	5.	14.	13.	13.
CHAR 030	99.	99.	99.	99.	99.	3.	99.	11.	11.	11.
CHAR 031	43.	44.	45.	39.	40.	3.	4.	14.	14.	14.
CHAR 032	99.	99.	99.	99.	99.	3.	99.	11.	11.	11.
CHAR 033	42.	43.	44.	40.	41.	3.	4.	14.	14.	14.
CHAR 034	23.	24.	25.	19.	19.	3.	4.	3.	3.	9.
CHAR 035	34.	35.	34.	32.	32.	3.	4.	11.	9.	8.
CHAR 036	2.	8.	2.	2.	2.	3.	1.	1.	3.	2.
CHAR 037	1.	1.	1.	1.	1.	3.	2.	2.	3.	2.
CHAR 038	74.	75.	76.	63.	64.	2.	2.	13.	12.	12.
CHAR 039	46.	47.	48.	42.	43.	3.	3.	12.	12.	12.
CHAR 040	2.	1.	5.	2.	2.	1.	1.	1.	1.	1.
CHAR 041	54.	55.	56.	46.	47.	3.	4.	10.	10.	13.
CHAR 042	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 043	22.	34.	17.	21.	29.	2.	2.	9.	9.	8.
CHAR 044	2.	2.	2.	2.	6.	2.	2.	2.	3.	2.
CHAR 045	3.	3.	3.	2.	5.	3.	2.	3.	3.	3.
CHAR 046	1.	1.	1.	1.	1.	2.	2.	2.	2.	2.
CHAR 047	2.	2.	2.	2.	2.	1.	1.	1.	1.	1.
CHAR 048	39.	56.	57.	45.	46.	3.	3.	12.	13.	11.
CHAR 049	2.	2.	2.	1.	1.	2.	2.	1.	1.	1.
CHAR 050	3.	3.	3.	3.	3.	3.	3.	3.	5.	4.
CHAR 051	3.	3.	3.	2.	6.	3.	3.	4.	4.	3.
CHAR 052	6.	6.	6.	6.	12.	4.	4.	6.	6.	6.
CHAR 053	30.	7.	5.	29.	13.	4.	4.	12.	8.	8.
CHAR 054	35.	36.	37.	15.	15.	4.	4.	20.	5.	5.

PLEASE TURN THE PAGE

CONTINUATION OF

	SE015	SE016	SE017	SE018	SE020	SE022	SE023	SE24A	SE24B	SE24C
CHAR 055	11.	11.	4.	4.	3.	4.	4.	4.	7.	4.
CHAR 056	1.	4.	4.	1.	4.	1.	1.	3.	3.	1.
CHAR 057	5.	1.	4.	8.	2.	1.	1.	5.	1.	1.
CHAR 058	4.	4.	4.	2.	7.	3.	2.	1.	2.	4.
CHAR 059	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 060	2.	2.	2.	2.	3.	2.	2.	2.	2.	2.
CHAR 061	3.	3.	3.	3.	1.	1.	1.	1.	1.	1.
CHAR 062	40.	10.	12.	40.	35.	4.	4.	11.	12.	11.
CHAR 063	46.	47.	48.	19.	29.	21.	21.	31.	23.	23.
CHAR 064	2.	2.	2.	2.	2.	2.	9.	15.	3.	12.
CHAR 065	6.	1.	1.	2.	2.	6.	6.	6.	6.	6.
CHAR 066	5.	5.	5.	2.	8.	3.	1.	4.	4.	4.
CHAR 067	2.	2.	2.	2.	2.	2.	2.	2.	2.	4.
CHAR 068	2.	2.	2.	10.	10.	99.	99.	99.	99.	99.
CHAR 069	5.	5.	5.	25.	22.	2.	2.	12.	1.	2.
CHAR 070	4.	4.	4.	2.	4.	99.	99.	99.	99.	99.
CHAR 071	3.	3.	3.	2.	5.	9999.	9999.	9999.	9999.	9999.
CHAR 072	1.	1.	1.	1.	1.	99.	99.	99.	99.	99.
CHAR 073	2.	2.	2.	2.	2.	99.	99.	99.	99.	99.
CHAR 074	4.	14.	15.	2.	4.	99.	99.	99.	99.	99.
CHAR 075	2.	2.	2.	1.	2.	99.	99.	99.	99.	99.
CHAR 076	2.	2.	2.	2.	2.	99.	99.	99.	99.	99.
CHAR 077	2.	2.	2.	2.	1.	99.	99.	99.	99.	99.
CHAR 078	5.	6.	6.	11.	5.	99.	99.	99.	99.	99.
CHAR 079	1.	1.	1.	1.	1.	99.	99.	99.	99.	99.
CHAR 080	2.	3.	3.	2.	3.	3.	2.	3.	3.	3.
CHAR 081	2.	2.	2.	2.	3.	2.	2.	2.	2.	2.
CHAR 082	1.	2.	2.	2.	1.	1.	1.	1.	1.	1.
CHAR 083	1.	1.	1.	1.	1.	1.	1.	2.	1.	1.
CHAR 084	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.
CHAR 085	2.	2.	2.	6.	2.	2.	2.	2.	2.	2.
CHAR 086	7.	7.	7.	7.	7.	2.	2.	2.	2.	2.
CHAR 087	1.	1.	1.	1.	2.	9999.	9999.	9999.	9999.	9999.
CHAR 088	5.	6.	6.	2.	5.	99.	99.	99.	99.	99.
CHAR 089	1.	1.	1.	1.	1.	99.	99.	99.	99.	99.
CHAR 090	3.	3.	3.	3.	3.	99.	99.	99.	99.	99.
CHAR 091	3.	3.	3.	3.	3.	99.	99.	99.	99.	99.
CHAR 092	1.	1.	1.	1.	1.	99.	99.	99.	99.	99.
CHAR 093	6.	6.	6.	6.	6.	99.	99.	99.	99.	99.
CHAR 094	2.	2.	2.	2.	3.	2.	2.	2.	2.	2.
CHAR 095	11.	17.	17.	13.	14.	9.	9.	9.	9.	9.
CHAR 096	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 097	5.	5.	5.	5.	3.	4.	5.	5.	5.	5.
CHAR 098	6.	5.	6.	3.	6.	3.	3.	3.	3.	3.
CHAR 099	1.	1.	1.	1.	1.	3.	1.	13.	14.	23.
CHAR 100	1.	1.	1.	1.	1.	7.	4.	2.	4.	4.
CHAR 101	4.	4.	4.	3.	7.	3.	4.	10.	2.	5.
CHAR 102	7.	8.	8.	5.	5.	1.	4.	2.	2.	1.
CHAR 103	1.	3.	3.	1.	1.	1.	1.	1.	1.	2.
CHAR 104	4.	4.	4.	4.	2.	2.	2.	2.	2.	2.

PLEASE TURN THE PAGE

CONTINUATION OF

	SE015	SE016	SE017	SE018	SE020	SE022	SE023	SE24A	SE 24B	SE24C
CHAR 105	3.	3.	2.	2.	4.	2.	1.	3.	2.	2.
CHAR 106	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 107	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.
CHAR 108	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 109	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 110	1.	1.	1.	1.	7.	1.	1.	1.	1.	1.
CHAR 111	2.	2.	2.	2.	4.	9999.	9999.	9999.	9999.	9999.
CHAR 112	1.	1.	1.	5.	1.	99.	99.	99.	99.	99.
CHAR 113	6.	6.	6.	10.	6.	99.	99.	99.	99.	99.
CHAR 114	1.	1.	1.	1.	1.	99.	99.	99.	99.	99.
CHAR 115	1.	1.	1.	1.	1.	99.	99.	99.	99.	99.
CHAR 116	3.	2.	3.	3.	5.	4.	3.	4.	1.	1.
CHAR 117	2.	2.	2.	4.	2.	2.	1.	2.	7.	7.
CHAR 118	7.	7.	7.	14.	7.	11.	1.	10.	11.	14.
CHAR 119	1.	1.	1.	1.	1.	18.	1.	11.	5.	5.
CHAR 120	1.	1.	1.	1.	1.	2.	1.	1.	2.	2.
CHAR 121	1.	1.	1.	1.	1.	9999.	9999.	9999.	9999.	9999.
CHAR 122	2.	2.	2.	2.	3.	99.	99.	99.	99.	99.
CHAR 123	6.	6.	6.	6.	1.	99.	99.	99.	99.	99.
CHAR 124	2.	2.	2.	2.	3.	99.	99.	99.	99.	99.
CHAR 125	9.	9.	9.	5.	1.	99.	99.	99.	99.	99.
CHAR 126	2.	2.	2.	2.	3.	2.	2.	3.	3.	2.
CHAR 127	4.	4.	4.	4.	1.	6.	3.	3.	6.	2.
CHAR 128	2.	2.	2.	2.	3.	2.	2.	2.	2.	4.
CHAR 129	13.	13.	13.	8.	1.	4.	9.	4.	13.	14.
CHAR 130	50.	51.	51.	40.	42.	4.	5.	8.		

IDENTIFICATION:

	SE24D	SE025	SE026	SE027	SE028	SE029	SE030	SF031	SE032	SE33A
CHAR 005	14.	3.	16.	9.	17.	18.	19.	20.	21.	22.
CHAR 006	17.	19.	20.	21.	22.	23.	24.	25.	26.	27.
CHAR 007	1.	13.	14.	1.	1.	1.	15.	16.	17.	18.
CHAR 008	1.	2.	2.	1.	1.	1.	1.	1.	1.	1.
CHAR 009	8.	0.	9.	5.	10.	2.	10.	11.	2.	12.
CHAR 010	700.	500.	450.	600.	250.	600.	300.	600.	600.	750.
CHAR 011	8.	1.	1.	9.	3.	10.	11.	12.	11.	13.
CHAR 012	200.	9999.	9999.	300.	190.	150.	50.	9999.	150.	300.
CHAR 013	140.	70.	125.	0.	0.	0.	0.	110.	0.	100.
CHAR 014	60.	999.	999.	50.	50.	20.	40.	999.	18.	40.
CHAR 015	20.	15.	55.	0.	0.	0.	0.	30.	0.	15.
CHAR 016	23.	99.	99.	16.	17.	18.	19.	99.	20.	21.
CHAR 017	32.	18.	19.	20.	21.	22.	23.	24.	25.	26.
CHAR 018	13.	99.	99.	7.	11.	6.	12.	99.	9.	7.
CHAR 019	8.	10.	8.	8.	8.	6.	11.	11.	6.	8.
CHAR 020	21.	99.	99.	15.	16.	17.	18.	99.	19.	20.
CHAR 021	31.	19.	20.	21.	4.	22.	15.	21.	24.	25.
CHAR 022	17.	99.	99.	10.	11.	12.	13.	99.	14.	15.
CHAR 023	13.	15.	16.	4.	17.	18.	14.	19.	2.	14.
CHAR 024	1.	99.	99.	6.	6.	6.	7.	99.	1.	1.
CHAR 025	1.	1.	6.	6.	1.	7.	1.	7.	1.	1.
CHAR 026	10.	99.	99.	11.	12.	11.	12.	99.	13.	14.
CHAR 027	10.	15.	15.	16.	17.	16.	17.	99.	2.	19.
CHAR 028	3.	99.	99.	3.	8.	9.	10.	99.	3.	11.
CHAR 029	13.	15.	5.	9.	16.	17.	16.	18.	16.	14.
CHAR 030	11.	99.	99.	10.	12.	13.	12.	99.	14.	15.
CHAR 031	14.	15.	15.	13.	16.	17.	16.	5.	5.	18.
CHAR 032	11.	99.	99.	12.	13.	14.	13.	99.	15.	16.
CHAR 033	14.	15.	15.	16.	17.	18.	17.	5.	5.	19.
CHAR 034	3.	10.	10.	11.	4.	12.	7.	99.	99.	4.
CHAR 035	18.	19.	6.	4.	11.	1.	10.	99.	99.	4.
CHAR 036	3.	3.	1.	1.	1.	1.	1.	99.	99.	4.
CHAR 037	3.	3.	2.	2.	2.	2.	2.	99.	99.	4.
CHAR 038	14.	15.	16.	17.	18.	19.	20.	99.	22.	23.
CHAR 039	12.	3.	3.	13.	14.	3.	15.	21.	16.	17.
CHAR 040	1.	1.	1.	1.	1.	1.	1.	17.	1.	4.
CHAR 041	6.	14.	15.	16.	17.	18.	20.	6.	20.	6.
CHAR 042	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 043	9.	10.	11.	8.	11.	11.	11.	12.	12.	13.
CHAR 044	2.	7.	5.	3.	3.	2.	2.	2.	1.	2.
CHAR 045	3.	5.	3.	3.	3.	3.	3.	3.	2.	3.
CHAR 046	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 047	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 048	23.	14.	5.	15.	5.	16.	17.	1.	18.	16.
CHAR 049	1.	2.	2.	2.	2.	1.	1.	5.	1.	1.
CHAR 050	5.	5.	5.	3.	3.	3.	4.	4.	3.	5.
CHAR 051	4.	7.	5.	4.	4.	3.	3.	3.	2.	3.
CHAR 052	6.	6.	6.	6.	7.	6.	6.	8.	6.	6.
CHAR 053	8.	8.	8.	7.	7.	9.	7.	7.	10.	11.
CHAR 054	5.	5.	5.	9.	10.	11.	10.	12.	13.	8.

PLEASE TURN THE PAGE

CONTINUATION OF

	SE240	SE025	SE026	SE027	SE028	SE029	SE030	SE031	SE032	SE33A
CHAR 055	7.	4.	7.	4.	4.	4.	7.	7.	4.	4.
CHAR 056	4.	5.	1.	4.	1.	1.	1.	4.	1.	1.
CHAR 057	1.	1.	1.	1.	1.	1.	1.	5.	1.	1.
CHAR 058	4.	3.	3.	3.	3.	3.	2.	2.	2.	2.
CHAR 059	2.	3.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 060	2.	3.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 061	1.	3.	3.	3.	3.	3.	1.	1.	1.	3.
CHAR 062	11.	12.	12.	10.	10.	13.	11.	22.	15.	14.
CHAR 063	23.	25.	7.	12.	26.	14.	26.	15.	16.	10.
CHAR 064	3.	9.	13.	17.	3.	18.	13.	9.	13.	3.
CHAR 065	6.	6.	1.	1.	1.	1.	1.	6.	1.	6.
CHAR 066	4.	3.	3.	3.	1.	3.	3.	6.	4.	7.
CHAR 067	2.	2.	2.	4.	7.	2.	7.	2.	2.	2.
CHAR 068	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 069	2.	13.	2.	14.	15.	16.	17.	2.	18.	19.
CHAR 070	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 071	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.
CHAR 072	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 073	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 074	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 075	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 076	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 077	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 078	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 079	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 080	3.	3.	3.	2.	3.	3.	3.	3.	2.	3.
CHAR 081	2.	3.	3.	2.	2.	2.	2.	2.	2.	2.
CHAR 082	1.	2.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 083	1.	1.	1.	1.	1.	1.	8.	1.	1.	3.
CHAR 084	7.	1.	2.	1.	1.	1.	1.	1.	2.	2.
CHAR 085	2.	2.	1.	1.	1.	2.	2.	2.	2.	2.
CHAR 086	2.	4.	2.	2.	2.	2.	2.	2.	2.	9999.
CHAR 087	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.
CHAR 088	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 089	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 090	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 091	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 092	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 093	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 094	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 095	9.	9.	9.	9.	9.	9.	9.	9.	9.	9.
CHAR 096	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 097	5.	5.	5.	5.	3.	4.	5.	5.	5.	5.
CHAR 098	3.	3.	3.	7.	7.	7.	3.	3.	3.	3.
CHAR 099	15.	16.	7.	14.	8.	15.	15.	17.	1.	18.
CHAR 100	8.	11.	1.	12.	8.	7.	13.	2.	11.	13.
CHAR 101	3.	12.	4.	3.	3.	3.	10.	4.	3.	3.
CHAR 102	4.	4.	5.	4.	5.	11.	4.	4.	4.	12.
CHAR 103	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 104	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.

PLEASE TURN THE PAGE

CONTINUATION OF

	SE24D	SE025	SE026	SE027	SE028	SE029	SE030	SE031	SE032	SE33A
CHAR 105	2.	3.	3.	2.	3.	2.	2.	2.	2.	2.
CHAR 106	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 107	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.
CHAR 108	2.	2.	3.	2.	2.	2.	2.	2.	2.	2.
CHAR 109	2.	2.	2.	2.	2.	2.	2.	2.	2.	1.
CHAR 110	1.	4.	2.	1.	4.	1.	1.	5.	1.	5.
CHAR 111	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.
CHAR 112	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 113	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 114	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 115	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 116	2.	4.	2.	3.	5.	4.	3.	2.	2.	2.
CHAR 117	1.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 118	7.	7.	7.	7.	7.	7.	7.	7.	7.	7.
CHAR 119	22.	12.	13.	5.	14.	9.	13.	15.	15.	14.
CHAR 120	11.	5.	11.	7.	7.	11.	5.	5.	5.	11.
CHAR 121	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 122	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.
CHAR 123	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 124	9.	9.	9.	9.	9.	9.	9.	9.	9.	9.
CHAR 125	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 126	3.	5.	4.	3.	3.	3.	3.	2.	2.	6.
CHAR 127	6.	7.	8.	6.	9.	9.	6.	9.	9.	2.
CHAR 128	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 129	4.	6.	7.	4.	8.	4.	4.	4.	4.	4.
CHAR 130	13.	8.	15.	16.	17.	18.	19.	20.	19.	21.

IDENTIFICATION:

	SE33B	SE034	SE035	SE036	SE037	SE3RA	SE3RB	SF039	SE040	SE041
CHAR 005	23.	24.	9.	10.	11.	6.	6.	7.	12.	5.
CHAR 006	28.	29.	11.	12.	13.	7.	7.	8.	14.	9.
CHAR 007	18.	19.	10.	11.	1.	6.	6.	7.	12.	8.
CHAR 008	1.	7.	1.	1.	1.	4.	4.	2.	6.	2.
CHAR 009	11.	13.	5.	5.	0.	0.	0.	2.	6.	3.
CHAR 010	750.	600.	700.	600.	300.	1300.	1300.	1000.	250.	600.
CHAR 011	13.	14.	5.	5.	6.	1.	1.	2.	6.	2.
CHAR 012	300.	999.	200.	150.	70.	999.	999.	270.	70.	200.
CHAR 013	100.	100.	0.	0.	70.	150.	150.	0.	40.	200.
CHAR 014	40.	99.	40.	30.	20.	99.	99.	70.	10.	70.
CHAR 015	15.	35.	0.	0.	20.	65.	65.	0.	7.	70.
CHAR 016	21.	99.	8.	9.	10.	99.	99.	5.	11.	6.
CHAR 017	26.	27.	11.	11.	12.	7.	7.	8.	13.	9.
CHAR 018	7.	99.	7.	7.	8.	99.	99.	5.	6.	6.
CHAR 019	8.	10.	8.	8.	9.	6.	6.	7.	11.	6.
CHAR 020	20.	99.	8.	9.	10.	99.	99.	5.	15.	10.
CHAR 021	25.	26.	12.	13.	14.	8.	8.	9.	14.	3.
CHAR 022	15.	99.	5.	6.	17.	99.	99.	2.	12.	7.
CHAR 023	14.	20.	9.	10.	11.	5.	5.	6.	1.	3.
CHAR 024	1.	99.	2.	1.	1.	99.	99.	2.	1.	4.
CHAR 025	1.	7.	3.	1.	1.	3.	3.	3.	8.	4.
CHAR 026	14.	99.	5.	6.	7.	99.	99.	7.	12.	8.
CHAR 027	19.	20.	9.	10.	11.	6.	6.	4.	3.	3.
CHAR 028	11.	99.	5.	6.	6.	99.	99.	8.	12.	9.
CHAR 029	14.	19.	10.	10.	11.	7.	7.	4.	10.	5.
CHAR 030	16.	99.	7.	8.	9.	99.	99.	8.	13.	9.
CHAR 031	24.	19.	10.	11.	12.	7.	7.	4.	10.	5.
CHAR 032	17.	99.	7.	8.	9.	99.	99.	8.	13.	9.
CHAR 033	24.	20.	10.	11.	12.	7.	7.	8.	13.	9.
CHAR 034	4.	9.	3.	3.	3.	3.	3.	3.	12.	6.
CHAR 035	10.	13.	19.	19.	19.	20.	20.	6.	4.	7.
CHAR 036	1.	3.	3.	3.	3.	3.	3.	1.	1.	2.
CHAR 037	2.	3.	3.	3.	3.	3.	3.	2.	2.	2.
CHAR 038	23.	24.	8.	9.	10.	4.	4.	5.	11.	6.
CHAR 039	17.	14.	9.	7.	10.	6.	6.	7.	11.	8.
CHAR 040	1.	4.	1.	1.	1.	1.	1.	1.	12.	8.
CHAR 041	10.	21.	9.	10.	11.	6.	6.	7.	1.	1.
CHAR 042	1.	1.	1.	1.	2.	1.	1.	1.	1.	5.
CHAR 043	13.	14.	3.	6.	7.	4.	4.	4.	8.	1.
CHAR 044	2.	2.	4.	3.	3.	2.	2.	2.	2.	2.
CHAR 045	3.	3.	3.	3.	3.	2.	2.	2.	2.	2.
CHAR 046	1.	3.	1.	1.	2.	4.	4.	2.	1.	1.
CHAR 047	2.	3.	2.	2.	1.	2.	2.	1.	11.	5.
CHAR 048	16.	2.	8.	9.	10.	5.	5.	6.	3.	2.
CHAR 049	1.	5.	2.	2.	4.	3.	3.	3.	1.	3.
CHAR 050	5.	3.	5.	5.	5.	3.	3.	3.	3.	3.
CHAR 051	3.	3.	4.	5.	4.	3.	3.	4.	6.	5.
CHAR 052	6.	8.	4.	4.	6.	6.	6.	4.	7.	5.
CHAR 053	7.	12.	18.	6.	6.	12.	4.	4.	4.	6.
CHAR 054	8.	8.	21.	5.	5.	18.	18.	5.	4.	4.

PLEASE TURN THE PAGE

CONTINUATION OF

	SE33B	SE034	SE035	SE036	SE037	SE38A	SE38B	SE039	SE040	SE041
CHAR 055	3.	3.	4.	3.	6.	4.	4.	4.	4.	4.
CHAR 056	4.	5.	3.	3.	4.	4.	4.	4.	4.	1.
CHAR 057	1.	1.	5.	1.	1.	1.	5.	1.	1.	4.
CHAR 058	2.	1.	1.	3.	1.	3.	4.	3.	3.	3.
CHAR 059	2.	2.	3.	2.	2.	2.	2.	2.	2.	2.
CHAR 060	2.	2.	2.	2.	2.	2.	2.	2.	1.	1.
CHAR 061	3.	3.	3.	3.	1.	3.	1.	1.	1.	3.
CHAR 062	11.	11.	23.	9.	9.	10.	4.	4.	10.	7.
CHAR 063	11.	11.	32.	25.	7.	22.	22.	7.	21.	28.
CHAR 064	13.	15.	18.	2.	3.	2.	2.	2.	11.	9.
CHAR 065	6.	6.	6.	1.	1.	1.	6.	1.	1.	5.
CHAR 066	7.	4.	1.	3.	1.	5.	5.	3.	3.	3.
CHAR 067	2.	2.	2.	7.	7.	2.	7.	4.	6.	2.
CHAR 068	5.	9.	4.	4.	9.	3.	9.	9.	9.	9.
CHAR 069	19.	9.	9.	9.	10.	6.	6.	2.	11.	7.
CHAR 070	4.	2.	4.	4.	9.	2.	9.	9.	9.	9.
CHAR 071	3.	4.	4.	4.	9.	2.	9.	9.	9.	9.
CHAR 072	1.	1.	1.	1.	9.	1.	9.	9.	9.	9.
CHAR 073	2.	2.	2.	2.	9.	2.	9.	9.	9.	9.
CHAR 074	4.	4.	4.	4.	9.	3.	9.	9.	9.	9.
CHAR 075	1.	1.	1.	1.	9.	1.	9.	9.	9.	9.
CHAR 076	2.	2.	2.	2.	9.	2.	9.	9.	9.	9.
CHAR 077	2.	1.	1.	3.	9.	2.	9.	9.	9.	9.
CHAR 078	5.	5.	6.	6.	9.	6.	9.	9.	9.	9.
CHAR 079	1.	1.	1.	1.	9.	1.	9.	9.	9.	9.
CHAR 080	4.	3.	4.	4.	3.	2.	3.	2.	2.	2.
CHAR 081	2.	2.	2.	2.	3.	2.	2.	2.	1.	1.
CHAR 082	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 083	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 084	7.	1.	1.	1.	1.	1.	4.	1.	3.	1.
CHAR 085	1.	2.	2.	2.	2.	2.	2.	1.	2.	2.
CHAR 086	6.	2.	2.	2.	3.	2.	2.	2.	4.	2.
CHAR 087	1.	1.	2.	1.	9.	1.	9.	9.	9.	9.
CHAR 088	2.	2.	2.	2.	9.	2.	9.	9.	9.	9.
CHAR 089	1.	1.	1.	1.	9.	1.	9.	9.	9.	9.
CHAR 090	3.	3.	3.	3.	9.	3.	9.	9.	9.	9.
CHAR 091	3.	3.	2.	2.	9.	3.	9.	9.	9.	9.
CHAR 092	6.	3.	3.	4.	9.	3.	9.	9.	9.	9.
CHAR 093	7.	7.	8.	7.	9.	7.	9.	9.	9.	9.
CHAR 094	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 095	9.	9.	9.	9.	9.	9.	9.	9.	9.	9.
CHAR 096	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 097	5.	5.	5.	5.	3.	5.	5.	5.	5.	5.
CHAR 098	3.	6.	6.	1.	1.	3.	3.	3.	6.	3.
CHAR 099	24.	18.	25.	9.	10.	5.	5.	7.	11.	8.
CHAR 100	12.	11.	11.	2.	11.	2.	2.	7.	2.	12.
CHAR 101	13.	4.	12.	4.	7.	4.	4.	2.	3.	12.
CHAR 102	6.	7.	14.	14.	1.	7.	7.	3.	4.	7.
CHAR 103	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 104	2.	2.	2.	2.	2.	4.	2.	2.	2.	2.

PLEASE TURN THE PAGE

CONTINUATION OF

	SE33B	SE034	SE035	SE036	SE037	SE38A	SE38B	SE039	SE040	SE041
CHAR 105	2.	2.	3.	3.	2.	2.	1.	1.	3.	2.
CHAR 106	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 107	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.
CHAR 108	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 109	1.	2.	2.	2.	2.	2.	1.	1.	2.	2.
CHAR 110	1.	1.	1.	1.	2.	1.	1.	2.	1.	2.
CHAR 111	2.	2.	2.	2.	999.	2.	999.	999.	999.	999.
CHAR 112	2.	2.	1.	1.	99.	6.	99.	99.	99.	99.
CHAR 113	6.	7.	6.	3.	99.	3.	99.	99.	99.	99.
CHAR 114	13.	6.	14.	4.	99.	3.	99.	99.	99.	99.
CHAR 115	3.	3.	5.	3.	3.	3.	2.	4.	2.	3.
CHAR 116	2.	3.	3.	2.	3.	1.	2.	2.	1.	7.
CHAR 117	2.	2.	2.	1.	2.	7.	7.	11.	7.	6.
CHAR 118	7.	7.	7.	6.	7.	5.	5.	6.	8.	5.
CHAR 119	6.	14.	23.	7.	9.	5.	5.	5.	5.	2.
CHAR 120	5.	5.	5.	5.	5.	2.	1.	1.	2.	999.
CHAR 121	2.	1.	2.	2.	2.	2.	999.	999.	999.	999.
CHAR 122	2.	2.	3.	3.	999.	2.	99.	99.	99.	99.
CHAR 123	5.	4.	4.	4.	99.	6.	9.	9.	9.	99.
CHAR 124	2.	2.	2.	2.	9.	2.	99.	99.	99.	99.
CHAR 125	5.	5.	4.	4.	99.	3.	2.	2.	2.	2.
CHAR 126	2.	2.	3.	3.	3.	2.	4.	4.	9.	10.
CHAR 127	6.	6.	6.	4.	10.	10.	4.	2.	2.	2.
CHAR 128	2.	2.	2.	2.	2.	4.	4.	4.	4.	4.
CHAR 129	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
CHAR 130	21.	22.	11.	12.	3.	7.	7.	8.	13.	9.

IDENTIFICATION:

	SE042	SE043	SE046	SE047	SE048	SE050	SE051	SE053	SE055	SE056
CHAR 005	8.	34.	35.	36.	37.	38.	16.	31.	16.	39.
CHAR 006	10.	37.	38.	39.	40.	41.	42.	36.	43.	44.
CHAR 007	9.	26.	27.	28.	11.	29.	30.	25.	31.	32.
CHAR 008	5.	2.	1.	1.	1.	1.	10.	12.	1.	1.
CHAR 009	4.	14.	2.	2.	2.	11.	0.	0.	15.	15.
CHAR 010	600.	400.	600.	700.	600.	350.	1000.	2000.	600.	750.
CHAR 011	2.	16.	6.	6.	6.	11.	1.	1.	6.	16.
CHAR 012	200.	200.	200.	350.	300.	100.	999.	999.	300.	300.
CHAR 013	200.	60.	70.	100.	70.	30.	100.	150.	0.	0.
CHAR 014	40.	40.	40.	50.	50.	10.	99.	99.	10.	40.
CHAR 015	40.	13.	15.	15.	13.	5.	20.	3.	0.	0.
CHAR 016	7.	24.	25.	26.	27.	28.	99.	99.	29.	30.
CHAR 017	10.	33.	34.	35.	36.	37.	38.	31.	37.	39.
CHAR 018	6.	12.	10.	10.	10.	6.	99.	99.	1.	10.
CHAR 019	6.	6.	9.	13.	13.	6.	6.	6.	1.	6.
CHAR 020	7.	22.	23.	24.	25.	26.	99.	99.	27.	28.
CHAR 021	11.	33.	34.	35.	36.	33.	37.	30.	38.	39.
CHAR 022	4.	7.	18.	19.	19.	20.	99.	99.	21.	22.
CHAR 023	8.	25.	14.	14.	14.	26.	27.	2.	14.	14.
CHAR 024	4.	1.	6.	6.	1.	1.	99.	99.	1.	6.
CHAR 025	5.	1.	7.	7.	1.	1.	1.	1.	1.	7.
CHAR 026	2.	15.	10.	2.	2.	2.	99.	99.	16.	16.
CHAR 027	2.	25.	14.	2.	2.	2.	2.	24.	26.	26.
CHAR 028	3.	12.	13.	14.	14.	15.	99.	99.	16.	16.
CHAR 029	9.	23.	24.	24.	24.	25.	26.	16.	27.	27.
CHAR 030	6.	17.	12.	18.	19.	20.	99.	99.	21.	22.
CHAR 031	8.	3.	16.	25.	26.	15.	17.	21.	27.	28.
CHAR 032	6.	4.	13.	18.	19.	20.	99.	99.	21.	22.
CHAR 033	8.	25.	17.	26.	27.	15.	18.	22.	28.	29.
CHAR 034	12.	4.	3.	3.	4.	16.	17.	15.	14.	14.
CHAR 035	20.	24.	6.	25.	26.	27.	28.	17.	23.	29.
CHAR 036	3.	6.	1.	5.	1.	1.	1.	1.	3.	5.
CHAR 037	3.	5.	2.	3.	2.	2.	2.	1.	3.	6.
CHAR 038	7.	31.	32.	33.	34.	35.	36.	30.	37.	38.
CHAR 039	3.	25.	7.	26.	27.	14.	28.	22.	13.	29.
CHAR 040	1.	4.	1.	4.	4.	1.	1.	2.	1.	4.
CHAR 041	6.	29.	10.	21.	30.	15.	31.	28.	32.	33.
CHAR 042	1.	1.	1.	1.	1.	1.	1.	1.	10.	16.
CHAR 043	4.	16.	17.	21.	19.	16.	20.	2.	4.	4.
CHAR 044	2.	3.	3.	3.	3.	2.	2.	3.	3.	3.
CHAR 045	2.	3.	3.	3.	3.	2.	2.	2.	2.	3.
CHAR 046	2.	1.	1.	1.	1.	1.	2.	1.	1.	4.
CHAR 047	1.	2.	2.	2.	2.	2.	2.	4.	28.	29.
CHAR 048	5.	5.	24.	25.	26.	27.	0.	1.	1.	1.
CHAR 049	2.	1.	1.	1.	1.	1.	1.	5.	5.	5.
CHAR 050	3.	4.	3.	3.	5.	4.	4.	3.	5.	5.
CHAR 051	3.	5.	6.	5.	5.	3.	9.	4.	9.	6.
CHAR 052	5.	5.	6.	5.	5.	4.	4.	4.	12.	8.
CHAR 053	5.	20.	8.	22.	23.	12.	12.	14.	29.	31.
CHAR 054	18.	24.	5.	25.	28.	29.	30.	16.		

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CONTINUATION OF

	SE042	SE043	SE046	SE047	SE048	SE050	SE051	SE053	SE055	SE056
CHAR 055	6.	4.	7.	4.	4.	3.	3.	10.	4.	3.
CHAR 056	3.	3.	5.	3.	3.	3.	3.	1.	3.	3.
CHAR 057	5.	6.	1.	5.	6.	1.	5.	3.	1.	5.
CHAR 058	3.	3.	3.	3.	2.	3.	2.	2.	3.	3.
CHAR 059	2.	2.	2.	2.	2.	2.	2.	6.	2.	2.
CHAR 060	2.	2.	3.	2.	3.	1.	2.	2.	2.	2.
CHAR 061	4.	4.	4.	4.	3.	1.	4.	7.	3.	3.
CHAR 062	7.	25.	12.	27.	28.	10.	28.	18.	28.	12.
CHAR 063	21.	34.	7.	35.	38.	33.	39.	20.	33.	21.
CHAR 064	13.	11.	11.	3.	15.	15.	15.	15.	9.	13.
CHAR 065	6.	7.	1.	6.	1.	6.	6.	2.	6.	6.
CHAR 066	2.	3.	3.	3.	3.	3.	3.	2.	3.	3.
CHAR 067	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 068	99.	8.	9.	6.	9.	10.	10.	99.	99.	10.
CHAR 069	8.	4.	21.	4.	21.	22.	22.	20.	22.	22.
CHAR 070	99.	4.	2.	3.	4.	2.	2.	99.	99.	3.
CHAR 071	9999.	4.	5.	5.	5.	2.	2.	9999.	9999.	5.
CHAR 072	99.	1.	1.	1.	1.	1.	1.	99.	99.	1.
CHAR 073	99.	2.	2.	2.	2.	2.	2.	99.	99.	2.
CHAR 074	99.	6.	7.	4.	3.	3.	5.	99.	99.	3.
CHAR 075	99.	2.	2.	2.	2.	2.	2.	99.	99.	2.
CHAR 076	99.	1.	2.	2.	2.	2.	2.	99.	99.	2.
CHAR 077	99.	2.	1.	1.	1.	2.	2.	99.	99.	1.
CHAR 078	99.	6.	6.	6.	6.	6.	6.	99.	99.	6.
CHAR 079	99.	1.	1.	1.	1.	1.	1.	99.	99.	3.
CHAR 080	3.	3.	3.	3.	3.	3.	3.	4.	4.	4.
CHAR 081	2.	3.	3.	3.	3.	2.	2.	2.	3.	3.
CHAR 082	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 083	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAP 084	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 085	2.	3.	2.	2.	11.	2.	1.	2.	3.	3.
CHAR 086	2.	2.	8.	6.	2.	2.	2.	2.	6.	2.
CHAR 087	9999.	2.	1.	1.	2.	1.	1.	9999.	9999.	2.
CHAR 088	99.	2.	2.	2.	2.	2.	2.	99.	99.	2.
CHAR 089	99.	1.	1.	1.	1.	1.	1.	99.	99.	1.
CHAR 090	99.	3.	3.	3.	3.	3.	3.	99.	99.	3.
CHAR 091	99.	2.	2.	3.	3.	3.	3.	99.	99.	3.
CHAR 092	99.	11.	11.	11.	11.	8.	7.	99.	99.	7.
CHAR 093	99.	1.	6.	1.	8.	6.	6.	99.	99.	6.
CHAR 094	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.
CHAR 095	9.	9.	9.	9.	9.	9.	9.	9.	9.	9.
CHAR 096	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 097	5.	5.	4.	5.	5.	4.	5.	5.	5.	4.
CHAR 098	6.	3.	6.	3.	3.	3.	3.	3.	3.	3.
CHAP 099	8.	15.	15.	26.	26.	19.	15.	1.	11.	15.
CHAR 100	12.	1.	1.	2.	1.	2.	1.	8.	12.	11.
CHAR 101	12.	6.	2.	2.	2.	2.	4.	3.	18.	18.
CHAR 102	5.	8.	2.	2.	2.	2.	8.	6.	13.	14.
CHAR 103	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 104	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.

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CONTINUATION OF

	SE042	SE043	SE046	SE047	SE048	SE050	SE051	SE053	SE055	SE056
CHAR 105	3.	3.	3.	3.	3.	2.	3.	2.	4.	4.
CHAR 106	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 107	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.
CHAR 108	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 109	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 110	5.	2.	2.	2.	1.	1.	1.	2.	1.	1.
CHAR 111	9999.	3.	3.	3.	2.	2.	2.	9999.	9999.	2.
CHAR 112	99.	3.	3.	4.	1.	1.	4.	99.	99.	3.
CHAR 113	99.	7.	7.	7.	7.	7.	6.	99.	99.	7.
CHAR 114	99.	15.	16.	17.	18.	8.	7.	99.	99.	17.
CHAR 115	99.	6.	3.	6.	3.	3.	3.	99.	99.	3.
CHAR 116	2.	5.	5.	5.	3.	3.	4.	2.	4.	4.
CHAR 117	2.	1.	1.	1.	2.	2.	2.	2.	2.	1.
CHAR 118	7.	11.	11.	11.	11.	11.	7.	7.	11.	11.
CHAR 119	6.	24.	25.	26.	27.	16.	28.	1.	8.	25.
CHAR 120	5.	13.	5.	5.	5.	5.	11.	9.	11.	14.
CHAR 121	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 122	9999.	3.	3.	3.	2.	2.	2.	9999.	9999.	3.
CHAR 123	99.	5.	8.	4.	4.	4.	5.	99.	99.	5.
CHAR 124	9.	2.	2.	2.	2.	2.	2.	9.	9.	2.
CHAR 125	99.	4.	4.	4.	4.	4.	4.	99.	99.	4.
CHAR 126	2.	3.	3.	3.	3.	3.	3.	3.	4.	3.
CHAR 127	9.	10.	9.	6.	6.	6.	10.	6.	10.	10.
CHAR 128	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 129	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
CHAR 130	10.	26.	27.	28.	29.	30.	6.	25.	31.	32.

IDENTIFICATION:

	SE057	SE063	SE064	SF065	SE067	SE072	SE073	SF074	SE075	SE076
CHAR 005	38.	35.	40.	16.	3.	41.	42.	1.	43.	2.
CHAR 006	45.	46.	47.	48.	3.	49.	50.	51.	52.	2.
CHAR 007	33.	34.	35.	1.	2.	36.	37.	1.	38.	1.
CHAR 008	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 009	2.	16.	16.	17.	0.	18.	18.	19.	20.	0.
CHAR 010	600.	750.	1000.	1300.	1000.	450.	450.	750.	1000.	1000.
CHAR 011	17.	3.	2.	4.	3.	3.	3.	400.	600.	500.
CHAR 012	250.	300.	350.	150.	160.	150.	0.	0.	0.	500.
CHAR 013	0.	0.	350.	150.	160.	0.	0.	80.	80.	20.
CHAR 014	40.	15.	15.	10.	10.	60.	30.	80.	0.	20.
CHAR 015	0.	0.	5.	10.	1.	0.	0.	0.	0.	0.
CHAR 016	31.	32.	29.	33.	3.	34.	35.	36.	37.	2.
CHAR 017	40.	41.	37.	42.	3.	43.	43.	44.	45.	2.
CHAR 018	10.	6.	9.	6.	3.	10.	5.	14.	6.	2.
CHAR 019	14.	6.	10.	6.	3.	13.	6.	12.	6.	2.
CHAR 020	29.	30.	30.	30.	3.	31.	32.	33.	34.	2.
CHAR 021	40.	41.	41.	41.	3.	42.	43.	44.	45.	2.
CHAR 022	23.	20.	24.	25.	1.	26.	27.	25.	28.	1.
CHAR 023	28.	14.	29.	30.	2.	14.	14.	14.	14.	1.
CHAR 024	6.	6.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 025	7.	7.	1.	1.	1.	1.	1.	2.	1.	1.
CHAR 026	17.	18.	18.	17.	1.	11.	19.	2.	2.	1.
CHAR 027	27.	28.	28.	27.	2.	16.	29.	2.	2.	2.
CHAR 028	17.	18.	18.	17.	2.	11.	3.	15.	19.	2.
CHAR 029	28.	16.	29.	28.	3.	14.	16.	16.	30.	2.
CHAR 030	23.	24.	24.	25.	2.	26.	25.	27.	28.	1.
CHAR 031	29.	30.	30.	31.	2.	32.	31.	26.	34.	1.
CHAR 032	15.	23.	23.	24.	2.	25.	24.	26.	27.	1.
CHAR 033	5.	30.	30.	31.	2.	32.	31.	33.	34.	1.
CHAR 034	3.	4.	5.	5.	2.	4.	3.	5.	22.	1.
CHAR 035	22.	4.	28.	30.	2.	2.	2.	30.	2.	2.
CHAR 036	2.	1.	1.	7.	1.	1.	1.	7.	1.	1.
CHAR 037	1.	2.	2.	1.	1.	1.	1.	1.	46.	1.
CHAR 038	39.	40.	41.	42.	1.	43.	44.	45.	46.	1.
CHAR 039	30.	31.	32.	33.	2.	34.	23.	35.	36.	2.
CHAR 040	2.	2.	4.	2.	2.	2.	2.	2.	2.	2.
CHAR 041	34.	30.	30.	35.	2.	36.	36.	37.	38.	2.
CHAR 042	1.	7.	1.	1.	1.	1.	1.	2.	1.	1.
CHAR 043	21.	22.	22.	21.	1.	23.	23.	24.	25.	4.
CHAR 044	4.	3.	3.	2.	2.	2.	2.	3.	5.	5.
CHAR 045	4.	3.	3.	3.	3.	3.	2.	4.	6.	5.
CHAR 046	2.	4.	1.	1.	2.	1.	1.	1.	1.	1.
CHAR 047	1.	3.	2.	2.	1.	2.	2.	2.	2.	2.
CHAR 048	29.	30.	31.	32.	2.	2.	33.	2.	34.	4.
CHAR 049	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 050	5.	5.	3.	3.	3.	5.	5.	5.	5.	5.
CHAR 051	4.	4.	3.	3.	3.	4.	3.	3.	7.	2.
CHAR 052	5.	5.	9.	9.	3.	9.	5.	5.	9.	2.
CHAR 053	24.	11.	11.	21.	3.	1.	1.	26.	13.	2.
CHAR 054	22.	32.	30.	33.	3.	99.	99.	33.	22.	2.

PLEASE TURN THE PAGE

	SE057	SE063	SE064	SE065	SE067	SE072	SE073	SE074	SE075	SE076
CHAR 055	4.	4.	4.	3.	3.	4.	3.	3.	3.	2.
CHAR 056	4.	4.	1.	1.	1.	3.	3.	3.	4.	2.
CHAR 057	2.	5.	7.	3.	3.	2.	2.	2.	2.	3.
CHAR 058	2.	2.	2.	2.	4.	2.	3.	3.	3.	3.
CHAR 059	2.	4.	4.	3.	3.	3.	3.	3.	4.	6.
CHAR 060	2.	2.	2.	2.	2.	2.	2.	3.	4.	4.
CHAR 061	3.	3.	3.	3.	1.	3.	1.	1.	1.	2.
CHAR 062	29.	14.	14.	20.	3.	32.	33.	34.	35.	2.
CHAR 063	9.	40.	39.	41.	3.	42.	42.	41.	9.	2.
CHAR 064	9.	16.	9.	15.	4.	9.	15.	15.	16.	5.
CHAR 065	2.	6.	6.	2.	3.	2.	2.	2.	2.	3.
CHAR 066	3.	2.	2.	2.	4.	2.	3.	3.	3.	3.
CHAR 067	2.	2.	2.	2.	5.	2.	2.	2.	2.	4.
CHAR 068	99.	10.	10.	10.	99.	10.	10.	10.	10.	1.
CHAR 069	4.	22.	22.	22.	3.	22.	22.	22.	22.	2.
CHAR 070	999.	2.	2.	2.	99.	2.	3.	3.	4.	4.
CHAR 071	9999.	5.	4.	3.	9999.	4.	4.	3.	6.	5.
CHAR 072	99.	1.	1.	1.	99.	1.	1.	1.	1.	1.
CHAR 073	99.	2.	1.	1.	99.	1.	2.	2.	1.	1.
CHAR 074	99.	5.	5.	8.	99.	3.	3.	9.	9.	1.
CHAR 075	99.	2.	2.	2.	99.	2.	2.	2.	2.	1.
CHAR 076	99.	2.	2.	2.	99.	2.	2.	2.	2.	2.
CHAR 077	99.	1.	1.	2.	99.	1.	1.	2.	1.	1.
CHAR 078	99.	5.	6.	5.	99.	6.	5.	5.	6.	5.
CHAR 079	99.	1.	3.	3.	99.	1.	1.	1.	1.	1.
CHAR 080	5.	3.	3.	3.	2.	3.	3.	3.	5.	3.
CHAR 081	3.	3.	3.	2.	2.	2.	2.	2.	3.	3.
CHAR 082	1.	1.	1.	1.	1.	1.	1.	1.	2.	1.
CHAR 083	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 084	1.	7.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 085	2.	2.	2.	2.	2.	3.	3.	12.	3.	2.
CHAR 086	6.	6.	2.	2.	2.	6.	6.	2.	7.	2.
CHAR 087	9999.	1.	1.	1.	9999.	1.	1.	1.	2.	2.
CHAR 088	99.	2.	2.	2.	99.	2.	2.	2.	2.	2.
CHAR 089	99.	1.	1.	1.	99.	1.	1.	1.	1.	1.
CHAR 090	99.	3.	3.	3.	99.	3.	3.	3.	3.	3.
CHAR 091	99.	3.	3.	3.	99.	3.	3.	3.	3.	2.
CHAR 092	99.	12.	12.	13.	99.	14.	15.	14.	16.	1.
CHAR 093	99.	7.	7.	6.	99.	6.	6.	6.	6.	6.
CHAR 094	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 095	9.	9.	9.	9.	9.	9.	9.	9.	9.	9.
CHAR 096	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 097	4.	5.	5.	5.	3.	5.	5.	5.	5.	5.
CHAR 098	3.	3.	3.	3.	3.	3.	3.	3.	3.	1.
CHAR 099	15.	1.	22.	18.	2.	27.	28.	27.	29.	1.
CHAR 100	11.	1.	14.	1.	2.	1.	1.	1.	1.	2.
CHAR 101	3.	1.	3.	3.	3.	1.	4.	3.	19.	3.
CHAR 102	6.	1.	4.	5.	5.	8.	5.	4.	11.	1.
CHAR 103	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 104	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.

PLEASE TURN THE PAGE

CONTINUATION OF		SE057	SE063	SE064	SE065	SE067	SE072	SE073	SE074	SE075	SE076
CHAR 105		3.	3.	4.	3.	3.	3.	2.	3.	4.	4.
CHAR 106		1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 107		6.	6.	6.	6.	6.	6.	6.	6.	6.	6.
CHAR 108		2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 109		2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 110		1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 111	999	9.	3.	3.	2.	999	2.	2.	3.	4.	2.
CHAR 112	99.	9.	1.	1.	1.	99.	1.	1.	1.	1.	1.
CHAR 113	99.	9.	6.	6.	6.	99.	6.	6.	6.	6.	6.
CHAR 114	99.	9.	12.	1.	6.	99.	19.	20.	19.	21.	3.
CHAR 115	99.	9.	3.	3.	3.	99.	3.	3.	3.	3.	6.
CHAR 116	4.	4.	5.	4.	3.	2.	2.	2.	4.	1.	2.
CHAR 117	1.	1.	2.	2.	2.	2.	2.	2.	2.	7.	7.
CHAR 118	11.	11.	7.	7.	7.	7.	7.	7.	7.	7.	7.
CHAR 119	9.	9.	21.	21.	29.	2.	30.	31.	30.	32.	1.
CHAR 120	14.	14.	5.	5.	5.	5.	5.	5.	5.	7.	5.
CHAR 121	2.	2.	1.	2.	2.	2.	2.	1.	1.	2.	2.
CHAR 122	999	9.	3.	3.	2.	999	2.	2.	2.	3.	3.
CHAR 123	99.	9.	7.	5.	5.	99.	5.	7.	7.	4.	8.
CHAR 124	9.	9.	2.	2.	2.	9.	2.	2.	2.	2.	2.
CHAR 125	99.	9.	4.	6.	6.	99.	6.	6.	6.	6.	1.
CHAR 126	3.	3.	3.	2.	2.	2.	2.	2.	3.	3.	3.
CHAR 127	10.	10.	3.	10.	10.	9.	10.	3.	3.	6.	9.
CHAR 128	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 129	10.	10.	8.	7.	9.	3.	3.	11.	8.	8.	2.
CHAR 130	28.	27.	33.	33.	33.	3.	22.	34.	35.	28.	2.

IDENTIFICATION:

	SE077	SE081	SE082	SE083	SE085	SE086	SE088	SE089	SE090	SE097
CHAR 005	1.	44.	45.	46.	47.	48.	49.	50.	27.	26.
CHAR 006	1.	53.	54.	55.	56.	57.	58.	59.	60.	63.
CHAR 007	1.	39.	1.	40.	41.	1.	42.	8.	43.	1.
CHAR 008	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 009	0.	14.	0.	21.	16.	22.	16.	23.	24.	4.
CHAR 010	1000.	700.	700.	450.	1000.	600.	1800.	1000.	1000.	750.
CHAR 011	2.	3.	3.	2.	3.	3.	2.	18.	18.	19.
CHAR 012	400.	200.	180.	200.	300.	400.	600.	9999.	9999.	9999.
CHAR 013	170.	0.	0.	0.	0.	0.	0.	90.	200.	225.
CHAR 014	40.	20.	8.	40.	90.	45.	50.	999.	999.	999.
CHAR 015	5.	0.	0.	0.	0.	0.	0.	90.	80.	18.
CHAR 016	1.	30.	38.	39.	40.	41.	37.	99.	99.	99.
CHAR 017	1.	46.	11.	47.	48.	49.	50.	51.	52.	37.
CHAR 018	1.	6.	15.	6.	14.	3.	1.	99.	99.	99.
CHAR 019	1.	6.	15.	6.	12.	3.	1.	16.	17.	2.
CHAR 020	1.	35.	36.	37.	35.	38.	39.	99.	99.	99.
CHAR 021	32.	46.	47.	48.	46.	49.	50.	51.	52.	55.
CHAR 022	16.	29.	30.	23.	28.	31.	20.	99.	99.	99.
CHAR 023	24.	14.	14.	24.	14.	31.	32.	33.	34.	36.
CHAR 024	1.	1.	1.	6.	6.	1.	1.	99.	99.	99.
CHAR 025	1.	1.	1.	7.	7.	1.	1.	8.	7.	9.
CHAR 026	1.	20.	1.	2.	21.	22.	23.	99.	99.	99.
CHAR 027	1.	30.	30.	2.	31.	32.	33.	34.	34.	36.
CHAR 028	1.	14.	20.	15.	19.	3.	18.	99.	99.	99.
CHAR 029	1.	24.	23.	31.	12.	33.	34.	12.	10.	35.
CHAR 030	1.	25.	29.	23.	30.	31.	32.	99.	99.	99.
CHAR 031	1.	31.	35.	29.	36.	37.	38.	5.	5.	5.
CHAR 032	1.	24.	28.	29.	30.	31.	32.	99.	99.	99.
CHAR 033	1.	31.	35.	36.	37.	38.	39.	5.	5.	5.
CHAR 034	1.	5.	5.	4.	5.	18.	5.	99.	99.	3.
CHAR 035	1.	21.	2.	21.	2.	22.	22.	99.	99.	31.
CHAR 036	2.	2.	1.	4.	1.	2.	2.	99.	99.	1.
CHAR 037	1.	1.	1.	1.	1.	1.	1.	99.	99.	1.
CHAR 038	1.	47.	48.	49.	49.	50.	47.	51.	52.	55.
CHAR 039	1.	18.	37.	30.	18.	38.	39.	18.	18.	40.
CHAR 040	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 041	1.	39.	39.	40.	39.	41.	42.	36.	21.	36.
CHAR 042	1.	1.	1.	1.	1.	1.	1.	1.	1.	8.
CHAR 043	1.	26.	12.	27.	12.	21.	22.	21.	21.	21.
CHAR 044	3.	6.	2.	3.	5.	2.	2.	2.	3.	1.
CHAR 045	5.	5.	3.	4.	5.	3.	2.	2.	3.	2.
CHAR 046	2.	1.	1.	1.	1.	1.	1.	2.	2.	1.
CHAR 047	1.	2.	2.	2.	2.	2.	2.	1.	1.	2.
CHAR 048	1.	2.	35.	36.	2.	37.	38.	16.	16.	16.
CHAR 049	1.	6.	1.	1.	6.	5.	3.	3.	3.	2.
CHAR 050	5.	6.	5.	5.	5.	5.	3.	3.	3.	2.
CHAR 051	4.	5.	4.	4.	5.	5.	3.	3.	4.	3.
CHAR 052	1.	5.	9.	9.	5.	5.	4.	10.	10.	10.
CHAR 053	3.	26.	27.	24.	1.	1.	1.	28.	1.	1.
CHAR 054	2.	22.	3.	22.	99.	99.	99.	34.	99.	99.

PLEASE TURN THE PAGE

CONTINUATION OF

	SE077	SE081	SE082	SE083	SE085	SE086	SE088	SE089	SE090	SE097
CHAR 055	3.	3.	3.	3.	3.	3.	3.	4.	3.	11.
CHAR 056	1.	3.	3.	3.	3.	3.	1.	3.	4.	1.
CHAR 057	3.	2.	2.	2.	2.	3.	2.	8.	8.	8.
CHAR 058	1.	3.	3.	3.	2.	3.	2.	3.	3.	4.
CHAR 059	3.	4.	3.	2.	3.	4.	2.	1.	1.	1.
CHAR 060	3.	4.	2.	3.	3.	2.	2.	2.	2.	2.
CHAR 061	1.	3.	1.	1.	3.	8.	4.	4.	4.	1.
CHAR 062	2.	30.	36.	30.	37.	26.	38.	39.	99.	99.
CHAR 063	2.	9.	9.	9.	17.	9.	9.	43.	9.	2.
CHAR 064	6.	15.	15.	15.	15.	15.	15.	9.	2.	2.
CHAR 065	2.	2.	2.	2.	1.	2.	2.	2.	3.	3.
CHAR 066	5.	3.	3.	3.	2.	2.	6.	2.	2.	2.
CHAR 067	2.	2.	2.	2.	2.	2.	2.	99.	99.	10.
CHAR 068	99.	10.	10.	10.	10.	11.	10.	22.	22.	22.
CHAR 069	1.	22.	22.	22.	22.	23.	22.	99.	99.	2.
CHAR 070	99.	4.	4.	3.	4.	4.	2.	9999.	9999.	3.
CHAR 071	9999.	4.	3.	4.	6.	4.	3.	99.	99.	1.
CHAR 072	99.	1.	1.	1.	1.	1.	2.	99.	99.	2.
CHAR 073	99.	2.	2.	1.	1.	1.	5.	99.	99.	4.
CHAR 074	99.	3.	5.	5.	4.	5.	2.	99.	99.	2.
CHAR 075	99.	2.	2.	2.	2.	2.	2.	99.	99.	2.
CHAR 076	99.	2.	2.	2.	2.	1.	2.	99.	99.	2.
CHAR 077	99.	1.	2.	1.	1.	5.	6.	99.	99.	6.
CHAR 078	99.	5.	6.	5.	5.	5.	99.	99.	99.	1.
CHAR 079	99.	1.	1.	1.	1.	1.	3.	2.	3.	2.
CHAR 080	3.	5.	3.	3.	4.	3.	2.	2.	2.	2.
CHAR 081	2.	3.	2.	3.	3.	2.	2.	2.	2.	2.
CHAR 082	1.	1.	1.	2.	1.	2.	2.	1.	1.	1.
CHAR 083	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 084	1.	1.	1.	1.	1.	2.	2.	2.	2.	7.
CHAR 085	2.	2.	2.	1.	2.	7.	7.	7.	2.	2.
CHAR 086	4.	7.	7.	7.	7.	7.	7.	9999.	9999.	1.
CHAR 087	9999.	1.	1.	2.	1.	2.	1.	99.	99.	5.
CHAR 088	99.	2.	2.	2.	2.	2.	2.	99.	99.	1.
CHAR 089	99.	1.	1.	1.	1.	1.	1.	99.	99.	3.
CHAR 090	99.	3.	3.	3.	3.	3.	3.	99.	99.	3.
CHAR 091	99.	3.	3.	3.	3.	3.	3.	99.	99.	1.
CHAR 092	99.	15.	8.	15.	17.	18.	18.	99.	99.	6.
CHAR 093	99.	6.	6.	6.	6.	6.	6.	99.	99.	2.
CHAR 094	2.	2.	2.	2.	2.	2.	2.	2.	2.	11.
CHAR 095	9.	9.	9.	9.	9.	9.	9.	9.	9.	1.
CHAR 096	1.	1.	1.	1.	1.	1.	1.	1.	1.	5.
CHAR 097	1.	5.	5.	5.	5.	5.	5.	4.	5.	6.
CHAR 098	1.	3.	3.	3.	3.	3.	3.	7.	3.	1.
CHAR 099	3.	28.	19.	28.	30.	31.	31.	18.	18.	1.
CHAR 100	1.	1.	1.	1.	1.	1.	1.	1.	3.	19.
CHAR 101	1.	4.	4.	3.	3.	3.	1.	6.	8.	5.
CHAR 102	16.	5.	8.	4.	4.	5.	1.	1.	1.	1.
CHAR 103	1.	1.	1.	1.	1.	1.	2.	2.	2.	5.
CHAR 104	2.	2.	2.	2.	2.	2.	2.	2.	2.	5.

PLEASE TURN THE PAGE

CONTINUATION OF

	SE077	SE081	SE082	SE083	SE085	SE086	SE088	SE089	SE090	SE097
CHAR 105	3.	3.	3.	3.	4.	3.	3.	3.	3.	2.
CHAR 106	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 107	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.
CHAR 108	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 109	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 110	1.	1.	2.	2.	4.	2.	1.	1.	1.	2.
CHAR 111	9999.	4.	3.	3.	2.	2.	3.	9999.	9999.	2.
CHAR 112	99.	1.	1.	1.	1.	1.	6.	99.	99.	6.
CHAR 113	99.	6.	6.	6.	6.	6.	6.	99.	99.	1.
CHAR 114	99.	22.	8.	20.	1.	22.	1.	99.	99.	1.
CHAR 115	99.	3.	3.	3.	3.	3.	3.	99.	99.	4.
CHAR 116	5.	6.	4.	5.	2.	2.	4.	4.	5.	2.
CHAR 117	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 118	7.	7.	7.	7.	7.	7.	7.	7.	7.	7.
CHAR 119	1.	33.	16.	31.	1.	33.	1.	13.	14.	1.
CHAR 120	10.	10.	5.	10.	5.	5.	5.	5.	1.	1.
CHAR 121	2.	2.	2.	2.	2.	1.	2.	2.	2.	2.
CHAR 122	9999.	3.	2.	2.	2.	3.	2.	9999.	9999.	2.
CHAR 123	99.	5.	4.	4.	4.	7.	5.	99.	99.	2.
CHAR 124	9.	2.	2.	2.	2.	2.	2.	9.	99.	1.
CHAR 125	99.	6.	6.	4.	8.	6.	4.	99.	99.	1.
CHAR 126	3.	3.	2.	3.	3.	3.	2.	2.	2.	2.
CHAR 127	10.	10.	6.	6.	6.	3.	10.	9.	10.	13.
CHAR 128	3.	2.	6.	2.	2.	2.	2.	2.	2.	2.
CHAR 129	1.	8.	4.	4.	4.	8.	4.	4.	8.	2.
CHAR 130	1.	30.	15.	32.	30.	36.	20.	34.	20.	17.

IDENTIFICATION:

	SE098	SE099	SE101	SF102	SE103	SE104	SE107	SE108	SE109	SF110
CHAR 005	26.	53.	50.	54.	55.	51.	2.	2.	58.	26.
CHAR 006	64.	65.	66.	67.	68.	61.	79.	78.	79.	80.
CHAR 007	1.	1.	1.	46.	1.	44.	54.	54.	55.	23.
CHAR 008	1.	1.	1.	1.	1.	1.	15.	15.	17.	18.
CHAR 009	4.	4.	4.	11.	11.	25.	0.	0.	0.	0.
CHAR 010	750.	600.	600.	1000.	600.	600.	9999.	9999.	9999.	9999.
CHAR 011	20.	19.	19.	21.	22.	9.	1.	1.	1.	1.
CHAR 012	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.
CHAR 013	225.	160.	140.	90.	150.	120.	120.	120.	70.	80.
CHAR 014	999.	999.	999.	999.	999.	999.	999.	999.	999.	999.
CHAR 015	18.	20.	40.	40.	15.	15.	50.	50.	80.	70.
CHAR 016	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 017	37.	37.	55.	56.	57.	53.	50.	50.	66.	67.
CHAR 018	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 019	2.	1.	19.	20.	1.	18.	6.	6.	6.	1.
CHAR 020	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 021	56.	57.	58.	59.	60.	53.	67.	67.	68.	69.
CHAR 022	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 023	36.	36.	37.	38.	39.	2.	46.	46.	47.	48.
CHAR 024	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 025	9.	9.	10.	11.	12.	7.	7.	7.	16.	3.
CHAR 026	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 027	36.	37.	38.	1.	1.	35.	40.	40.	43.	44.
CHAR 028	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 029	35.	35.	0.	36.	37.	16.	12.	12.	12.	12.
CHAR 030	99.	99.	0.	99.	99.	99.	99.	99.	99.	99.
CHAR 031	5.	5.	5.	5.	5.	5.	5.	5.	41.	31.
CHAR 032	99.	99.	9.	99.	99.	99.	99.	99.	99.	99.
CHAR 033	5.	5.	5.	5.	5.	5.	5.	5.	5.	31.
CHAR 034	99.	99.	99.	99.	99.	99.	99.	99.	20.	4.
CHAR 035	99.	99.	99.	99.	99.	99.	99.	99.	33.	22.
CHAR 036	99.	99.	99.	99.	99.	99.	99.	99.	1.	2.
CHAR 037	99.	99.	99.	99.	99.	99.	99.	99.	1.	1.
CHAR 038	55.	56.	57.	58.	59.	53.	68.	68.	69.	70.
CHAR 039	40.	40.	40.	40.	40.	40.	18.	18.	18.	44.
CHAR 040	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 041	36.	36.	36.	43.	36.	59.	50.	50.	51.	51.
CHAR 042	1.	1.	1.	1.	1.	1.	4.	4.	1.	1.
CHAR 043	21.	21.	21.	21.	21.	36.	3.	3.	21.	21.
CHAR 044	3.	2.	2.	2.	2.	3.	2.	1.	1.	1.
CHAR 045	2.	3.	2.	2.	2.	3.	1.	1.	1.	1.
CHAR 046	1.	1.	3.	1.	1.	2.	1.	2.	2.	3.
CHAR 047	2.	2.	2.	2.	2.	1.	2.	1.	1.	1.
CHAR 048	16.	15.	16.	41.	15.	34.	50.	50.	51.	52.
CHAR 049	2.	3.	2.	2.	2.	3.	4.	4.	4.	2.
CHAR 050	2.	3.	2.	2.	2.	3.	2.	1.	2.	1.
CHAR 051	3.	3.	2.	2.	3.	4.	2.	2.	2.	2.
CHAR 052	10.	5.	10.	10.	10.	10.	6.	6.	6.	14.
CHAR 053	1.	1.	1.	1.	1.	1.	1.	1.	1.	21.
CHAR 054	99.	99.	99.	99.	99.	99.	99.	99.	99.	22.

PLEASE TURN THE PAGE

CONTINUATION OF

	SE098	SE099	SE101	SE102	SE103	SE104	SE107	SE108	SE109	SE110
CHAR 055	11.	11.	11.	11.	11.	11.	3.	3.	3.	4.
CHAR 056	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 057	8.	2.	2.	8.	8.	2.	8.	8.	8.	8.
CHAR 058	2.	2.	2.	1.	2.	1.	3.	3.	4.	3.
CHAR 059	1.	1.	1.	1.	1.	2.	2.	2.	2.	2.
CHAR 060	1.	2.	2.	1.	1.	2.	2.	2.	2.	1.
CHAR 061	3.	1.	1.	4.	4.	1.	3.	3.	3.	3.
CHAR 062	5.	5.	5.	5.	5.	6.	5.	5.	5.	41.
CHAR 063	99.	99.	99.	99.	99.	44.	99.	99.	99.	99.
CHAR 064	9.	15.	10.	9.	9.	9.	2.	2.	15.	2.
CHAR 065	2.	2.	2.	2.	2.	1.	2.	2.	2.	2.
CHAR 066	3.	2.	3.	3.	3.	3.	3.	3.	5.	3.
CHAR 067	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 068	10.	10.	10.	10.	10.	99.	10.	99.	99.	10.
CHAR 069	22.	22.	22.	22.	22.	22.	22.	22.	22.	22.
CHAR 070	2.	2.	1.	2.	1.	99.	1.	99.	99.	1.
CHAR 071	3.	3.	2.	2.	2.	9999.	2.	9999.	9999.	2.
CHAR 072	1.	1.	1.	1.	1.	99.	1.	99.	99.	1.
CHAR 073	2.	2.	2.	2.	2.	99.	2.	99.	99.	2.
CHAR 074	10.	4.	4.	11.	10.	99.	4.	99.	99.	3.
CHAR 075	1.	2.	2.	2.	2.	99.	2.	99.	99.	2.
CHAR 076	2.	2.	2.	2.	2.	99.	2.	99.	99.	2.
CHAR 077	2.	2.	2.	2.	2.	99.	2.	99.	99.	2.
CHAR 078	6.	11.	6.	5.	11.	99.	6.	99.	99.	6.
CHAR 079	1.	1.	1.	1.	1.	99.	1.	99.	99.	1.
CHAR 080	2.	3.	2.	2.	2.	3.	2.	1.	2.	2.
CHAR 081	2.	2.	2.	2.	2.	2.	2.	2.	2.	1.
CHAR 082	2.	1.	2.	2.	2.	2.	1.	1.	2.	2.
CHAR 083	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 084	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 085	1.	5.	1.	1.	1.	1.	3.	3.	3.	2.
CHAR 086	7.	2.	7.	7.	2.	2.	7.	7.	7.	7.
CHAR 087	1.	1.	1.	1.	1.	9999.	1.	9999.	9999.	1.
CHAR 088	2.	2.	2.	2.	2.	99.	6.	99.	99.	2.
CHAR 089	1.	1.	1.	1.	1.	99.	1.	99.	99.	1.
CHAR 090	3.	3.	3.	3.	3.	99.	3.	99.	99.	3.
CHAR 091	3.	3.	3.	3.	3.	99.	2.	99.	99.	3.
CHAR 092	1.	1.	0.	1.	1.	99.	6.	99.	99.	13.
CHAR 093	6.	6.	0.	6.	6.	99.	6.	99.	99.	6.
CHAR 094	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 095	11.	11.	9.	11.	11.	9.	11.	11.	11.	14.
CHAR 096	1.	1.	0.	1.	1.	1.	1.	1.	1.	1.
CHAR 097	5.	5.	0.	5.	5.	5.	5.	5.	5.	5.
CHAR 098	6.	6.	0.	6.	1.	6.	3.	3.	3.	5.
CHAR 099	1.	1.	0.	1.	1.	1.	8.	31.	8.	18.
CHAR 100	1.	1.	10.	1.	1.	1.	1.	1.	1.	1.
CHAR 101	7.	7.	10.	3.	4.	3.	3.	3.	3.	3.
CHAR 102	5.	5.	5.	11.	4.	6.	3.	7.	7.	6.
CHAR 103	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 104	6.	4.	4.	4.	4.	3.	4.	4.	4.	4.

PLEASE TURN THE PAGE

CONTINUATION OF

	SE098	SE099	SE101	SE102	SE103	SE104	SE107	SE108	SE109	SE110
CHAR 105	3.	2.	2.	3.	3.	3.	2.	3.	2.	1.
CHAR 106	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 107	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.
CHAR 108	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 109	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 110	2.	2.	2.	2.	2.	5.	1.	1.	1.	1.
CHAR 111	3.	2.	3.	3.	2.	9999.	2.	9999.	9999.	1.
CHAR 112	1.	1.	1.	1.	1.	99.	1.	99.	99.	6.
CHAR 113	6.	6.	6.	6.	6.	99.	6.	99.	99.	6.
CHAR 114	1.	1.	1.	1.	1.	99.	5.	99.	99.	1.
CHAR 115	1.	1.	1.	1.	1.	99.	2.	99.	99.	2.
CHAR 116	4.	4.	4.	4.	4.	9.	3.	3.	2.	2.
CHAR 117	2.	2.	2.	2.	2.	2.	2.	1.	2.	7.
CHAR 118	7.	7.	7.	7.	7.	7.	7.	7.	7.	14.
CHAR 119	1.	1.	1.	1.	1.	1.	34.	33.	34.	7.
CHAR 120	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 121	1.	1.	1.	1.	1.	1.	2.	2.	9999.	1.
CHAR 122	2.	2.	2.	2.	2.	9999.	2.	9999.	9999.	6.
CHAR 123	6.	1.	1.	6.	1.	99.	5.	97.	99.	2.
CHAR 124	2.	2.	2.	2.	2.	9.	2.	9.	99.	4.
CHAR 125	1.	1.	1.	2.	1.	99.	4.	99.	99.	1.
CHAR 126	2.	2.	2.	2.	2.	2.	2.	2.	2.	4.
CHAR 127	4.	1.	1.	4.	1.	1.	10.	10.	4.	2.
CHAR 128	2.	2.	2.	2.	2.	2.	2.	2.	2.	4.
CHAR 129	2.	2.	2.	4.	2.	12.	4.	4.	47.	45.
CHAR 130	17.	16.	16.	12.	39.	15.	45.	46.		

IDENTIFICATION:

	SE111	SE116	SE117	SE118	SE119	SE120	SE121	SE122	SE124	SE200
CHAR 005	59.	29.	16.	52.	16.	16.	16.	16.	16.	0.
CHAR 006	81.	82.	74.	62.	75.	87.	83.	76.	88.	89.
CHAR 007	23.	56.	51.	45.	52.	61.	57.	53.	62.	0.
CHAR 008	19.	20.	15.	13.	15.	23.	21.	16.	10.	1.
CHAR 009	0.	0.	0.	14.	0.	0.	0.	27.	0.	0.
CHAR 010	9999.	9999.	0.	800.	0.	150.	9999.	600.	450.	9999.
CHAR 011	1.	1.	24.	1.	24.	1.	1.	10.	1.	1.
CHAR 012	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.
CHAR 013	80.	60.	55.	75.	20.	50.	70.	120.	60.	9999.
CHAR 014	999.	999.	999.	999.	999.	999.	999.	999.	999.	999.
CHAR 015	80.	70.	5.	20.	20.	9.	70.	35.	15.	999.
CHAR 016	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 017	68.	69.	63.	54.	64.	73.	70.	65.	74.	61.
CHAR 018	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 019	6.	6.	22.	10.	23.	6.	23.	17.	10.	0.
CHAR 020	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 021	70.	71.	99.	54.	15.	99.	72.	66.	15.	0.
CHAR 022	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 023	49.	50.	2.	35.	44.	54.	51.	45.	14.	0.
CHAR 024	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 025	16.	7.	6.	7.	6.	6.	17.	1.	1.	0.
CHAR 026	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 027	42.	43.	40.	4.	40.	40.	45.	41.	48.	0.
CHAR 028	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 029	12.	12.	16.	31.	12.	38.	12.	16.	43.	99.
CHAR 030	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 031	22.	41.	5.	5.	5.	5.	42.	5.	5.	31.
CHAR 032	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 033	7.	5.	5.	5.	5.	5.	5.	5.	5.	31.
CHAR 034	3.	3.	99.	99.	99.	99.	19.	99.	99.	36.
CHAR 035	31.	31.	99.	99.	99.	99.	32.	99.	99.	21.
CHAR 036	1.	1.	99.	99.	99.	99.	2.	99.	99.	2.
CHAR 037	1.	1.	99.	99.	99.	99.	1.	99.	99.	1.
CHAR 038	71.	72.	65.	54.	66.	77.	73.	67.	78.	0.
CHAR 039	18.	18.	18.	18.	18.	18.	45.	18.	18.	0.
CHAR 040	2.	2.	2.	2.	2.	2.	2.	2.	2.	0.
CHAR 041	43.	52.	48.	59.	44.	57.	53.	49.	58.	0.
CHAR 042	4.	1.	1.	4.	1.	1.	1.	1.	1.	1.
CHAR 043	31.	32.	15.	37.	21.	35.	33.	30.	99.	0.
CHAR 044	5.	5.	5.	3.	6.	5.	2.	6.	2.	2.
CHAR 045	2.	3.	2.	3.	2.	3.	2.	5.	3.	3.
CHAR 046	1.	2.	2.	5.	2.	2.	2.	2.	2.	1.
CHAR 047	2.	1.	1.	2.	1.	1.	1.	1.	1.	2.
CHAR 048	53.	54.	47.	39.	48.	58.	55.	49.	59.	16.
CHAR 049	2.	4.	4.	3.	4.	3.	4.	6.	2.	4.
CHAR 050	2.	3.	2.	3.	1.	3.	2.	2.	2.	3.
CHAR 051	4.	4.	5.	4.	5.	5.	3.	7.	3.	3.
CHAR 052	15.	9.	9.	10.	6.	6.	15.	13.	10.	8.
CHAR 053	1.	1.	1.	1.	1.	31.	1.	1.	1.	1.
CHAR 054	99.	99.	99.	99.	99.	6.	99.	99.	99.	99.

PLEASE TURN THE PAGE

CONTINUATION OF

	SE111	SE116	SE117	SE118	SE119	SF120	SE 121	SE122	SE124	SF200
CHAR 055	4.	3.	4.	3.	4.	4.	4.	7.	4.	3.
CHAR 056	1.	1.	1.	1.	1.	1.	1.	4.	6.	4.
CHAR 057	8.	8.	8.	9.	8.	1.	8.	2.	2.	2.
CHAR 058	3.	3.	3.	3.	8.	3.	3.	3.	3.	2.
CHAR 059	2.	2.	2.	3.	2.	2.	2.	99.	99.	6.
CHAR 060	1.	4.	1.	2.	1.	2.	2.	99.	99.	2.
CHAR 061	3.	3.	3.	3.	4.	3.	3.	99.	99.	6.
CHAR 062	42.	31.	41.	5.	41.	5.	40.	99.	99.	41.
CHAR 063	43.	43.	45.	99.	43.	99.	29.	99.	99.	9.
CHAR 064	3.	2.	3.	2.	2.	9.	3.	99.	99.	9.
CHAR 065	2.	2.	2.	8.	2.	2.	2.	9.	9.	2.
CHAR 066	3.	3.	3.	3.	3.	3.	3.	9.	9.	2.
CHAR 067	2.	9.	2.	2.	2.	2.	2.	99.	99.	2.
CHAR 068	10.	99.	99.	9.	99.	99.	99.	99.	99.	1.
CHAR 069	22.	29.	26.	24.	27.	27.	30.	28.	31.	4.
CHAR 070	2.	99.	99.	4.	99.	99.	99.	99.	99.	3.
CHAR 071	4.	9999.	9999.	2.	9999.	9999.	9999.	9999.	9999.	4.
CHAR 072	1.	99.	99.	2.	99.	99.	99.	99.	99.	1.
CHAR 073	2.	99.	99.	4.	99.	99.	99.	99.	99.	2.
CHAR 074	13.	99.	99.	4.	99.	99.	99.	99.	99.	4.
CHAR 075	2.	99.	99.	1.	99.	99.	99.	99.	99.	2.
CHAR 076	2.	99.	99.	5.	99.	99.	99.	99.	99.	2.
CHAR 077	1.	99.	99.	4.	99.	99.	99.	99.	99.	3.
CHAR 078	6.	99.	99.	5.	99.	99.	99.	99.	99.	6.
CHAR 079	1.	99.	99.	4.	99.	99.	99.	99.	99.	1.
CHAR 080	2.	3.	1.	3.	1.	2.	2.	3.	2.	3.
CHAR 081	3.	3.	3.	2.	4.	3.	2.	4.	2.	2.
CHAR 082	1.	2.	2.	2.	2.	2.	2.	2.	3.	1.
CHAR 083	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 084	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 085	2.	2.	7.	4.	2.	2.	2.	1.	1.	3.
CHAR 086	7.	2.	7.	7.	7.	7.	7.	9.	10.	2.
CHAR 087	2.	9999.	9999.	1.	9999.	9999.	9999.	9999.	9999.	1.
CHAR 088	2.	99.	99.	4.	99.	99.	99.	99.	99.	2.
CHAR 089	1.	99.	99.	1.	99.	99.	99.	99.	99.	1.
CHAR 090	3.	99.	99.	3.	99.	99.	99.	99.	99.	3.
CHAR 091	3.	99.	99.	3.	99.	99.	99.	99.	99.	3.
CHAR 092	1.	99.	99.	1.	99.	99.	99.	99.	99.	13.
CHAR 093	6.	99.	99.	6.	99.	99.	99.	99.	99.	6.
CHAR 094	3.	3.	3.	2.	4.	3.	2.	4.	2.	2.
CHAR 095	11.	11.	11.	10.	15.	9.	11.	16.	19.	9.
CHAR 096	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 097	5.	5.	5.	5.	5.	5.	5.	3.	5.	5.
CHAR 098	5.	5.	6.	6.	3.	6.	6.	3.	3.	3.
CHAR 099	1.	18.	18.	1.	1.	15.	1.	1.	32.	18.
CHAR 100	1.	1.	15.	1.	1.	1.	1.	1.	1.	1.
CHAR 101	4.	3.	3.	3.	4.	3.	3.	20.	2.	3.
CHAR 102	7.	12.	5.	5.	8.	6.	6.	7.	2.	6.
CHAR 103	3.	3.	3.	3.	3.	3.	3.	3.	4.	1.
CHAR 104	2.	4.	2.	4.	2.	2.	3.	2.	2.	2.

PLEASE TURN THE PAGE

CONTINUATION OF

	SF111	SF116	SF117	SF118	SF119	SF120	SF121	SF122	SF124	SF200
CHAR 105	3.	4.	4.	3.	4.	4.	3.	4.	3.	2.
CHAR 106	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 107	6.	6.	6.	6.	6.	6.	10.	6.	6.	6.
CHAR 108	5.	4.	5.	3.	4.	4.	2.	4.	2.	2.
CHAR 109	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 110	8.	2.	2.	2.	8.	2.	1.	8.	3.	1.
CHAR 111	3.	9999.	9999.	3.	9999.	9999.	9999.	9999.	9999.	2.
CHAR 112	1.	99.	99.	1.	99.	99.	99.	99.	99.	1.
CHAR 113	6.	99.	99.	8.	99.	99.	99.	99.	99.	6.
CHAR 114	1.	99.	99.	1.	99.	99.	99.	99.	99.	7.
CHAR 115	1.	99.	99.	2.	99.	99.	99.	99.	99.	3.
CHAR 116	4.	5.	4.	4.	5.	4.	4.	5.	4.	2.
CHAR 117	2.	2.	2.	2.	2.	2.	7.	7.	15.	7.
CHAR 118	7.	7.	7.	7.	7.	7.	1.	1.	35.	14.
CHAR 119	1.	14.	13.	1.	1.	24.	1.	1.	1.	5.
CHAR 120	1.	1.	1.	4.	1.	1.	1.	1.	1.	2.
CHAR 121	1.	2.	2.	1.	1.	2.	1.	1.	9999.	2.
CHAR 122	2.	9999.	9999.	2.	9999.	9999.	9999.	9999.	9999.	4.
CHAR 123	2.	99.	99.	6.	99.	99.	99.	99.	99.	2.
CHAR 124	2.	9.	9.	2.	9.	9.	9.	99.	99.	4.
CHAR 125	2.	99.	99.	1.	99.	99.	99.	99.	99.	2.
CHAR 126	2.	3.	4.	3.	5.	4.	2.	4.	14.	6.
CHAR 127	2.	10.	10.	4.	2.	2.	4.	2.	2.	2.
CHAR 128	2.	2.	2.	2.	4.	2.	2.	4.	4.	4.
CHAR 129	4.	12.	8.	2.	4.	13.	8.	44.	6.	0.
CHAR 130	48.	45.	43.	38.	33.	52.	49.	44.		

IDENTIFICATION:

	SE201	SE202	SE203	SE204	SE210	SE212	SE213	SE214	SE215	SE216
CHAR 005	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 006	89.	89.	89.	89.	90.	90.	90.	91.	90.	90.
CHAR 007	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 008	3.	3.	3.	3.	3.	3.	3.	99.	3.	3.
CHAR 009	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 010	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 011	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 012	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.
CHAR 013	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.
CHAR 014	999.	999.	999.	999.	999.	999.	999.	999.	999.	999.
CHAR 015	999.	999.	999.	999.	999.	999.	999.	999.	999.	999.
CHAR 016	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 017	75.	76.	77.	78.	79.	79.	80.	81.	82.	83.
CHAR 018	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 019	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 020	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 021	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 022	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 023	0.	0.	0.	0.	25.	25.	25.	56.	14.	40.
CHAR 024	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 025	0.	0.	0.	0.	1.	1.	1.	99.	99.	99.
CHAR 026	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 027	0.	0.	0.	0.	0.	0.	2.	0.	99.	99.
CHAR 028	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 029	0.	0.	0.	0.	23.	23.	23.	14.	23.	20.
CHAR 030	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 031	5.	16.	40.	15.	46.	46.	46.	47.	46.	49.
CHAR 032	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 033	5.	17.	5.	15.	36.	15.	36.	46.	36.	26.
CHAR 034	99.	26.	15.	27.	9.	4.	9.	9.	22.	22.
CHAR 035	99.	37.	0.	38.	40.	39.	40.	41.	2.	2.
CHAR 036	99.	2.	2.	1.	1.	1.	1.	5.	1.	1.
CHAR 037	99.	6.	1.	2.	0.	0.	0.	0.	0.	0.
CHAR 038	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 039	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 040	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 041	0.	0.	0.	0.	1.	1.	1.	1.	1.	1.
CHAR 042	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.
CHAR 043	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 044	2.	3.	3.	4.	2.	3.	2.	2.	2.	2.
CHAR 045	2.	3.	3.	3.	2.	3.	2.	2.	2.	2.
CHAR 046	1.	1.	1.	1.	2.	1.	1.	2.	2.	2.
CHAR 047	2.	2.	2.	2.	1.	1.	1.	2.	2.	2.
CHAR 048	16.	16.	16.	16.	2.	16.	16.	16.	16.	15.
CHAR 049	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 050	3.	3.	5.	3.	4.	3.	3.	3.	3.	3.
CHAR 051	4.	5.	4.	4.	3.	3.	3.	8.	8.	6.
CHAR 052	8.	6.	6.	6.	6.	8.	8.	8.	8.	33.
CHAR 053	1.	15.	21.	11.	1.	12.	1.	1.	1.	1.
CHAR 054	99.	38.	39.	40.	99.	41.	99.	99.	99.	42.

PLEASE TURN THE PAGE

CONTINUATION OF

	SE 201	SE 202	SE 203	SE 204	SE 210	SE 212	SE 213	SE 214	SE 215	SE 216
CHAR 055	4.	4.	4.	4.	4.	4.	3.	4.	4.	4.
CHAR 056	4.	4.	3.	1.	3.	3.	4.	2.	2.	3.
CHAR 057	2.	5.	5.	1.	2.	1.	2.	2.	2.	2.
CHAR 058	2.	4.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 059	2.	2.	6.	4.	4.	3.	99.	3.	2.	1.
CHAR 060	2.	2.	3.	2.	2.	2.	99.	7.	2.	1.
CHAR 061	3.	3.	6.	7.	7.	3.	99.	45.	9.	26.
CHAR 062	5.	43.	44.	43.	5.	10.	99.	9.	9.	53.
CHAR 063	99.	49.	50.	51.	99.	52.	99.	13.	15.	2.
CHAR 064	3.	9.	2.	5.	2.	2.	99.	2.	2.	2.
CHAR 065	2.	6.	2.	6.	2.	1.	9.	2.	2.	2.
CHAR 066	2.	5.	2.	2.	2.	2.	99.	2.	2.	2.
CHAR 067	2.	2.	2.	6.	6.	6.	99.	6.	6.	6.
CHAR 068	1.	1.	1.	1.	99.	4.	4.	4.	4.	4.
CHAR 069	4.	2.	4.	4.	4.	4.	4.	2.	1.	1.
CHAR 070	2.	2.	4.	4.	99.	2.	2.	3.	2.	3.
CHAR 071	4.	4.	4.	4.	99.	3.	1.	1.	2.	2.
CHAR 072	1.	1.	1.	1.	99.	2.	2.	2.	9.	16.
CHAR 073	2.	2.	2.	2.	99.	3.	10.	2.	2.	2.
CHAR 074	4.	4.	2.	2.	99.	2.	2.	2.	2.	2.
CHAR 075	2.	2.	2.	2.	99.	2.	2.	2.	2.	2.
CHAR 076	2.	2.	2.	2.	99.	2.	2.	2.	2.	2.
CHAR 077	1.	1.	1.	1.	99.	6.	6.	6.	6.	6.
CHAR 078	6.	6.	6.	5.	99.	1.	1.	1.	1.	4.
CHAR 079	1.	1.	1.	1.	99.	3.	4.	3.	2.	2.
CHAR 080	3.	3.	4.	4.	2.	2.	2.	2.	2.	2.
CHAR 081	2.	2.	2.	2.	2.	2.	1.	1.	1.	1.
CHAR 082	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 083	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 084	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 085	3.	3.	2.	3.	1.	2.	7.	2.	2.	2.
CHAR 086	2.	12.	2.	2.	7.	2.	7.	1.	1.	1.
CHAR 087	1.	1.	1.	1.	99.	1.	2.	2.	2.	2.
CHAR 088	2.	2.	2.	2.	99.	2.	1.	1.	1.	1.
CHAR 089	1.	1.	1.	1.	99.	1.	3.	3.	3.	3.
CHAR 090	3.	3.	3.	3.	99.	3.	2.	2.	2.	2.
CHAR 091	2.	2.	3.	3.	99.	2.	7.	7.	13.	13.
CHAR 092	7.	7.	7.	7.	99.	1.	6.	6.	6.	6.
CHAR 093	6.	6.	6.	6.	99.	6.	2.	2.	2.	1.
CHAR 094	2.	2.	2.	2.	9.	2.	9.	9.	9.	9.
CHAR 095	9.	9.	9.	9.	1.	1.	1.	1.	1.	5.
CHAR 096	1.	1.	1.	1.	5.	5.	5.	5.	5.	6.
CHAR 097	5.	5.	5.	5.	1.	6.	1.	3.	3.	18.
CHAR 098	6.	3.	3.	3.	18.	1.	18.	15.	18.	18.
CHAR 099	15.	15.	15.	15.	1.	1.	1.	1.	1.	1.
CHAR 100	1.	1.	1.	1.	2.	2.	2.	9.	4.	1.
CHAR 101	4.	4.	3.	3.	2.	3.	3.	4.	7.	1.
CHAR 102	7.	7.	6.	4.	2.	1.	1.	1.	1.	1.
CHAR 103	1.	1.	1.	1.	2.	2.	2.	2.	2.	2.
CHAR 104	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.

PLEASE TURN THE PAGE

CONTINUATION OF

	SE201	SE202	SE203	SE204	SE210	SE212	SE213	SE214	SE215	SE216
CHAR 105	3.	3.	2.	1.	1.	1.	1.	2.	1.	1.
CHAR 106	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 107	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.
CHAR 108	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 109	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 110	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 111	2.	2.	2.	3.	999.	1.	2.	1.	2.	2.
CHAR 112	1.	1.	1.	1.	99.	99.	1.	6.	1.	6.
CHAR 113	7.	6.	6.	6.	99.	99.	6.	7.	6.	23.
CHAR 114	7.	7.	7.	7.	99.	99.	6.	4.	6.	6.
CHAR 115	3.	6.	6.	6.	2.	2.	3.	3.	2.	3.
CHAR 116	3.	3.	2.	4.	2.	2.	2.	2.	2.	2.
CHAR 117	2.	2.	2.	2.	7.	7.	7.	7.	7.	7.
CHAR 118	11.	7.	7.	7.	24.	1.	14.	36.	14.	14.
CHAR 119	9.	36.	36.	36.	7.	5.	5.	7.	7.	13.
CHAR 120	5.	7.	2.	2.	2.	2.	2.	2.	2.	2.
CHAR 121	2.	2.	2.	2.	9999.	2.	2.	2.	2.	2.
CHAR 122	3.	2.	3.	3.	99.	4.	4.	4.	4.	4.
CHAR 123	4.	4.	4.	2.	99.	2.	2.	2.	2.	2.
CHAR 124	2.	2.	2.	4.	99.	4.	4.	4.	4.	4.
CHAR 125	4.	4.	4.	3.	2.	2.	2.	2.	2.	2.
CHAR 126	3.	2.	3.	6.	5.	6.	6.	6.	6.	6.
CHAR 127	6.	6.	6.	2.	2.	2.	2.	2.	2.	2.
CHAR 128	2.	2.	4.	4.	4.	4.	4.	4.	4.	4.
CHAR 129	4.	4.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 130	99.	0.	0.	0.	0.	0.	0.	0.	0.	0.

IDENTIFICATION:

	SE217	SE219	SE220	SE223	SE224	CR225	EM226	GY227	KL228	KL229
CHAR 005	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 006	92.	93.	94.	95.	95.	95.	95.	96.	96.	97.
CHAR 007	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 008	3.	3.	0.	0.	3.	0.	0.	0.	24.	24.
CHAR 009	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 010	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 011	1.	1.	1.	1.	1.	1.	1.	1.	1.	23.
CHAR 012	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.
CHAR 013	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.	9999.
CHAR 014	999.	999.	999.	999.	999.	999.	999.	999.	999.	999.
CHAR 015	999.	999.	999.	999.	999.	999.	999.	999.	999.	999.
CHAR 016	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 017	84.	74.	85.	86.	87.	88.	89.	90.	90.	74.
CHAR 018	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 019	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 020	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 021	24.	7.	74.	16.	15.	71.	24.	16.	15.	15.
CHAR 022	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 023	53.	11.	12.	44.	57.	56.	58.	59.	21.	21.
CHAR 024	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 025	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 026	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 027	0.	0.	0.	0.	0.	0.	0.	0.	40.	40.
CHAR 028	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 029	23.	14.	20.	12.	27.	2.	44.	4.	20.	12.
CHAR 030	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 031	46.	31.	41.	5.	41.	32.	31.	49.	5.	5.
CHAR 032	99.	99.	99.	99.	99.	99.	99.	99.	99.	99.
CHAR 033	36.	31.	5.	5.	5.	32.	31.	48.	5.	5.
CHAR 034	9.	3.	3.	99.	9.	26.	3.	28.	99.	99.
CHAR 035	22.	21.	21.	99.	40.	22.	2.	17.	99.	99.
CHAR 036	2.	2.	2.	99.	1.	2.	1.	1.	99.	99.
CHAR 037	1.	1.	1.	99.	1.	1.	1.	1.	99.	99.
CHAR 038	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 039	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 040	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 041	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 042	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 043	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
CHAR 044	2.	1.	2.	3.	4.	4.	3.	3.	7.	6.
CHAR 045	2.	2.	2.	2.	3.	3.	2.	2.	3.	2.
CHAR 046	1.	1.	1.	2.	2.	2.	2.	2.	2.	2.
CHAR 047	2.	2.	2.	1.	1.	1.	1.	1.	1.	1.
CHAR 048	19.	15.	19.	52.	59.	60.	61.	62.	4.	53.
CHAR 049	1.	1.	1.	1.	1.	1.	1.	1.	1.	4.
CHAR 050	4.	3.	3.	3.	3.	4.	3.	3.	2.	2.
CHAR 051	3.	3.	2.	3.	5.	4.	3.	4.	7.	6.
CHAR 052	6.	6.	6.	16.	4.	8.	11.	4.	12.	4.
CHAR 053	1.	1.	21.	1.	1.	21.	27.	33.	1.	1.
CHAR 054	99.	99.	22.	99.	99.	22.	43.	43.	99.	99.

PLEASE TURN THE PAGE

CONTINUATION OF

	SE217	SE219	SE220	SE223	SE224	CR275	EM226	GY227	KL228	KL229
CHAR 055	4.	4.	4.	3.	4.	4.	4.	4.	3.	4.
CHAR 056	4.	3.	4.	1.	3.	3.	1.	1.	1.	1.
CHAR 057	2.	2.	2.	2.	2.	8.	2.	2.	2.	2.
CHAR 058	2.	2.	2.	2.	2.	3.	99.	3.	3.	3.
CHAR 059	2.	2.	3.	2.	99.	5.	99.	4.	1.	2.
CHAR 060	2.	2.	1.	2.	99.	2.	99.	2.	2.	2.
CHAR 061	3.	3.	7.	1.	99.	7.	99.	7.	4.	3.
CHAR 062	5.	26.	34.	10.	99.	41.	99.	26.	5.	41.
CHAR 063	99.	9.	9.	50.	99.	9.	99.	45.	99.	43.
CHAR 064	3.	15.	15.	15.	99.	2.	99.	3.	9.	2.
CHAR 065	2.	2.	2.	2.	9.	2.	9.	2.	2.	2.
CHAR 066	2.	2.	2.	2.	99.	7.	99.	3.	3.	2.
CHAR 067	2.	2.	2.	2.	99.	2.	99.	2.	99.	99.
CHAR 068	6.	6.	6.	99.	99.	99.	99.	99.	0.	4.
CHAR 069	4.	4.	4.	4.	32.	33.	4.	34.	99.	99.
CHAR 070	4.	3.	3.	99.	99.	99.	99.	99.	99.	99.
CHAR 071	2.	1.	2.	99.	99.	99.	99.	99.	99.	99.
CHAR 072	1.	3.	1.	99.	99.	99.	99.	99.	99.	99.
CHAR 073	2.	2.	2.	99.	99.	99.	99.	99.	99.	99.
CHAR 074	9.	9.	9.	99.	99.	99.	99.	99.	99.	99.
CHAR 075	2.	2.	2.	99.	99.	99.	99.	99.	99.	99.
CHAR 076	2.	2.	2.	99.	99.	99.	99.	99.	99.	99.
CHAR 077	2.	2.	2.	99.	99.	99.	99.	99.	99.	99.
CHAR 078	6.	6.	6.	99.	99.	99.	99.	99.	99.	99.
CHAR 079	1.	1.	1.	99.	99.	99.	99.	99.	99.	99.
CHAR 080	3.	2.	3.	2.	3.	4.	3.	3.	4.	4.
CHAR 081	2.	2.	1.	3.	3.	3.	2.	2.	3.	3.
CHAR 082	2.	1.	1.	2.	1.	4.	1.	1.	1.	1.
CHAR 083	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 084	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.
CHAR 085	1.	1.	1.	1.	1.	7.	1.	1.	2.	2.
CHAR 086	2.	2.	7.	7.	2.	2.	2.	13.	2.	99.
CHAR 087	1.	1.	1.	99.	99.	99.	99.	99.	99.	99.
CHAR 088	2.	2.	2.	99.	99.	99.	99.	99.	99.	99.
CHAR 089	1.	1.	3.	99.	99.	99.	99.	99.	99.	99.
CHAR 090	3.	3.	2.	99.	99.	99.	99.	99.	99.	99.
CHAR 091	2.	3.	2.	99.	99.	99.	99.	99.	99.	99.
CHAR 092	7.	13.	13.	99.	99.	99.	99.	99.	99.	99.
CHAR 093	6.	6.	6.	99.	99.	99.	99.	99.	99.	99.
CHAR 094	2.	1.	2.	4.	2.	2.	2.	4.	4.	4.
CHAR 095	9.	9.	9.	14.	19.	20.	14.	21.	22.	22.
CHAR 096	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 097	5.	5.	5.	5.	5.	5.	5.	5.	4.	5.
CHAR 098	6.	3.	6.	3.	3.	3.	6.	3.	3.	3.
CHAR 099	15.	18.	18.	1.	18.	18.	18.	15.	1.	1.
CHAR 100	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
CHAR 101	4.	3.	7.	3.	3.	7.	6.	3.	7.	8.
CHAR 102	7.	4.	5.	5.	5.	5.	4.	5.	3.	3.
CHAR 103	1.	1.	1.	3.	3.	4.	4.	5.	3.	3.
CHAR 104	2.	2.	2.	4.	2.	2.	2.	2.	2.	2.

PLEASE TURN THE PAGE

CONTINUATION OF

	SE217	SE219	SE220	SE223	SE224	CR225	EM226	GY227	KL228	KL229
CHAR 105	2.	1.	1.	3.	3.	1.	1.	2.	4.	4.
CHAR 106	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.
CHAR 107	6.	6.	6.	6.	6.	6.	6.	11.	6.	6.
CHAR 108	2.	2.	2.	3.	7.	3.	2.	2.	4.	4.
CHAR 109	1.	1.	2.	2.	7.	1.	2.	1.	2.	2.
CHAR 110	1.	1.	1.	2.	7.	9.	2.	8.	8.	8.
CHAR 111	7.	2.	2.	9999.	9999.	9999.	9999.	9999.	9999.	9999.
CHAR 112	1.	4.	1.	99.	99.	99.	99.	99.	99.	99.
CHAR 113	6.	6.	6.	99.	99.	99.	99.	99.	99.	99.
CHAR 114	15.	6.	23.	99.	99.	99.	99.	99.	99.	99.
CHAR 115	2.	6.	6.	99.	99.	99.	99.	99.	99.	99.
CHAR 116	2.	3.	3.	3.	5.	2.	2.	2.	4.	5.
CHAR 117	2.	2.	2.	2.	7.	7.	7.	7.	1.	1.
CHAR 118	7.	7.	7.	6.	15.	2.	2.	2.	7.	7.
CHAR 119	24.	14.	37.	1.	24.	14.	24.	38.	1.	1.
CHAR 120	1.	7.	7.	5.	1.	5.	7.	1.	1.	1.
CHAR 121	2.	2.	2.	1.	1.	2.	1.	2.	1.	1.
CHAR 122	2.	2.	1.	9999.	9999.	9999.	9999.	9999.	9999.	9999.
CHAR 123	4.	4.	4.	99.	99.	99.	99.	99.	99.	99.
CHAR 124	2.	2.	2.	9.	9.	9.	9.	9.	9.	9.
CHAR 125	4.	4.	4.	99.	99.	99.	99.	99.	99.	99.
CHAR 126	2.	2.	2.	3.	3.	3.	2.	3.	4.	5.
CHAR 127	6.	6.	6.	4.	7.	6.	2.	6.	4.	2.
CHAR 128	2.	2.	2.	2.	7.	2.	2.	2.	2.	2.
CHAR 129	4.	4.	4.	9.	8.	4.	4.	4.	8.	4.
CHAR 130	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

IDENTIFICATION:

	C1232
CHAR 005	0.
CHAR 006	98.
CHAR 007	0.
CHAR 008	1.
CHAR 009	0.
CHAR 010	0.
CHAR 011	1.
CHAR 012	9999.
CHAR 013	9999.
CHAR 014	999.
CHAR 015	999.
CHAR 016	99.
CHAR 017	91.
CHAR 018	99.
CHAR 019	0.
CHAR 020	99.
CHAR 021	37.
CHAR 022	99.
CHAR 023	60.
CHAR 024	99.
CHAR 025	0.
CHAR 026	99.
CHAR 027	0.
CHAR 028	99.
CHAR 029	12.
CHAR 030	99.
CHAR 031	50.
CHAR 032	99.
CHAR 033	49.
CHAR 034	28.
CHAR 035	31.
CHAR 036	1.
CHAR 037	1.
CHAR 038	0.
CHAR 039	0.
CHAR 040	0.
CHAR 041	0.
CHAR 042	1.
CHAR 043	0.
CHAR 044	2.
CHAR 045	2.
CHAR 046	1.
CHAR 047	2.
CHAR 048	63.
CHAR 049	1.
CHAR 050	3.
CHAR 051	3.
CHAR 052	6.
CHAR 053	34.
CHAR 054	44.

CONTINUATION OF

	C1232
CHAR 055	4.
CHAR 056	1.
CHAR 057	2.
CHAR 058	2.
CHAR 059	2.
CHAR 060	1.
CHAR 061	4.
CHAR 062	46.
CHAR 063	45.
CHAR 064	2.
CHAR 065	2.
CHAR 066	2.
CHAR 067	2.
CHAR 068	10.
CHAR 069	22.
CHAR 070	2.
CHAR 071	3.
CHAR 072	1.
CHAR 073	2.
CHAR 074	17.
CHAR 075	2.
CHAR 076	2.
CHAR 077	2.
CHAR 078	5.
CHAR 079	1.
CHAR 080	3.
CHAR 081	2.
CHAR 082	1.
CHAR 083	1.
CHAR 084	1.
CHAR 085	4.
CHAR 086	7.
CHAR 087	1.
CHAR 088	2.
CHAR 089	1.
CHAR 090	3.
CHAR 091	3.
CHAR 092	19.
CHAR 093	6.
CHAR 094	2.
CHAR 095	9.
CHAR 096	1.
CHAR 097	3.
CHAR 098	3.
CHAR 099	33.
CHAR 100	1.
CHAR 101	3.
CHAR 102	8.
CHAR 103	1.
CHAR 104	2.

CONTINUATION OF

	C1232
CHAR 105	2.
CHAR 106	1.
CHAR 107	6.
CHAR 108	2.
CHAR 109	2.
CHAR 110	1.
CHAR 111	2.
CHAR 112	6.
CHAR 113	11.
CHAR 114	24.
CHAR 115	1.
CHAR 116	3.
CHAR 117	6.
CHAR 118	16.
CHAR 119	39.
CHAR 120	1.
CHAR 121	1.
CHAR 122	2.
CHAR 123	6.
CHAR 124	2.
CHAR 125	6.
CHAR 126	2.
CHAR 127	4.
CHAR 128	2.
CHAR 129	8.
CHAR 130	0.

APPENDIX C

The following data were obtained from observations of the pollen of all the taxa investigated (Table 1), with respect to the five pollen characters studied (Table 20), using scanning electron microscopy (SEM).

CHARACTERS STUDIED

- Character 1: Shape of the pollen grains.
 Character 2: Spinule frequency.
 Character 3: Length/width (basal) ratio of the spinules.
 Character 4: Prominence of the colpi.
 Character 5: Perforations in the exine.

Character States (scores):

- Character 1: Spheroidal - 1
 Character 2: Relatively high - 1; Relatively low - 2
 Character 3: Quantitative data
 Character 4: Prominent - 1; Not prominent - 2
 Character 5: Perforations frequent - 1; Perforations not frequent - 2
 (For further information on the definition of these characters, see chapter 7)

NATAL SENECIOS

The numbers in the left hand margin correspond to the species numbers for Senecio in Hilliard (1977).

	CHARACTERS				
	1	2	3	4	5
1. <u>S. madagascariensis</u> Poinet	1	1	0,73	1	2
2. <u>S. skirrhodon</u> DC.	1	1	0,75	1	2
3. <u>S. inaequidens</u> DC.	1	1	0,82	1	2
4. <u>S. harveianus</u> MacOwan	1	1	0,60	1	1
5. <u>S. polyanthemoides</u> Schultz Bipontinus	1	2	1,00	1	1
6. <u>S. pterophorus</u> DC.	1	1	0,92	1	2
7. <u>S. juniperinus</u> L.f.	1	1	0,91	1	2
9. <u>S. serratuloides</u> DC.	1	1	0,71	1	2
10. <u>S. microglossus</u> DC.	1	1	0,82	1	2

APPENDIX C continued

14.	<u>S. panduriformis</u> Hilliard	1	1	0,60	1	2
15.	<u>S. achilleifolius</u> DC.	1	1	0,90	1	1
16.	<u>S. tanacetopsis</u> Hilliard	1	1	1,15	1	2
17.	<u>S. seminiveus</u> Wood & Evans	1	1	0,83	1	1
18.	<u>S. haygarthii</u> Hilliard	1	1	0,83	1	1
20.	<u>S. medley-woodii</u> Hutchinson	1	1	0,71	1	1
22.	<u>S. purpureus</u> L.	1	1	0,75	1	2
23.	<u>S. gerrardii</u> Harvey	1	1	1,00	1	2
24.	<u>S. erubescens</u> Aiton					
	var. <u>erubescens</u> (24A)	1	1	1,00	1	2
	var. <u>crepidifolius</u> DC. (24B)	1	1	0,79	1	2
	var. <u>incisus</u> DC. (24C)	1	1	0,64	1	2
	var. <u>dichotomus</u> DC. (24D)	1	1	0,90	1	1
25.	<u>S. sandersonii</u> Harvey	1	1	1,18	1	2
26.	<u>S. glanduloso-lanosus</u> Thellung	1	1	0,90	1	2
27.	<u>S. variabilis</u> Schultz Bipontinus	1	1	0,64	1	2
28.	<u>S. umgeniensis</u> Thellung	1	1	1,10	1	2
29.	<u>S. glanduloso-pilosus</u> Volken & Muschler	1	1	0,82	1	1
30.	<u>S. subcoriaceus</u> Schlechter	1	1	0,69	1	1
31.	<u>S. cathcartensis</u> D. Hoffmann	1	1	0,75	1	2
32.	<u>S. ngoyanus</u> Hilliard	1	1	0,90	1	2
33.	<u>S. polyodon</u> DC.					
	var. <u>polyodon</u> (33A)	1	1	1,00	1	1
	var. <u>subqlaber</u> (O.Kuntze)	1	1	1,00	1	1
	Hilliard & Burtt (33B)					
34.	<u>S. sp. aff. S. speciosus</u>	1	1	1,33	1	2
35.	<u>S. speciosus</u> Willdenow	1	1	1,13	1	1
36.	<u>S. macrocephalus</u> DC.	1	1	1,20	1	2
37.	<u>S. barbatus</u> DC.	1	1	1,00	1	2
38.	<u>S. poseideonis</u> Hilliard & Burtt					
	radiate form (38A)	1	1	1,10	1	2
	discoid form (38B)	1	1	0,90	1	1
39.	<u>S. sp. aff. S. poseideonis</u>	1	1	1,00	1	1
40.	<u>S. arabidifolius</u> D. Hoffmann	1	1	0,80	1	1
41.	<u>S. rhyncholaenus</u> DC.	1	1	0,83	1	1
42.	<u>S. subrubriflorus</u> D. Hoffmann	1	1	0,82	1	2
43.	<u>S. hastatus</u> L.	1	2	0,85	1	1
46.	<u>S. hirsutilobus</u> Hilliard	1	1	0,92	1	2
47.	<u>S. ingeliensis</u> Hilliard	1	1	0,92	1	1
48.	<u>S. natalicola</u> Hilliard	1	1	1,22	1	1
50.	<u>S. hieracioides</u> DC.	1	1	1,11	1	2
51.	<u>S. consanguineus</u> DC.	1	1	0,89	1	2
53.	<u>S. chrysocoma</u> Meerburgh	1	1	1,00	1	2
55.	<u>S. asperulus</u> DC.	1	1	1,00	1	2
56.	<u>S. hypochoerideus</u> DC.	1	1	1,09	1	1
57.	<u>S. mooreanus</u> Hutchinson	1	1	1,03	1	2
63.	<u>S. paludaffinis</u> Hilliard	1	1	0,92	1	1
64.	<u>S. affinis</u> DC.	1	1	1,00	1	1
65.	<u>S. lydenburgensis</u> Hutchinson & Burtt Davy	1	2	1,00	1	1
67.	<u>S. anomalochrous</u> Hilliard	1	1	0,93	1	1
72.	<u>S. brevidentatus</u> M.D. Henderson	1	1	0,91	1	1

APPENDIX C continued

73.	<u>S. praeteritus</u> Killick	1	1	1,18	1	2
74.	<u>S. coronatus</u> (Thunberg) Harvey	1	1	1,25	1	1
75.	<u>S. macrospermus</u> DC.	1	1	1,00	1	1
76.	<u>S. dregeanus</u> DC.	1	1	1,50	1	1
77.	<u>S. discodregeanus</u> Hilliard & Burt	1	1	0,86	1	2
81.	<u>S. caudatus</u> DC.	1	1	1,00	1	2
82.	<u>S. mauricei</u> Hilliard & Burt	1	1	1,00	1	1
83.	<u>S. saniensis</u> Hilliard & Burt	1	1	0,77	1	1
85.	<u>S. heliopsis</u> Hilliard & Burt	1	1	1,00	1	2
86.	<u>S. albanensis</u> DC. var. <u>doroniciflorus</u> (DC.) Harvey	1	1	1,00	1	2
88.	<u>S. inornatus</u> DC.	1	1	0,93	1	1
89.	<u>S. oxyriifolius</u> DC.	1	1	1,10	1	1
90.	<u>S. rhomboideus</u> Harvey	1	1	0,77	1	1
97.	<u>S. bupleuroides</u> DC.	1	1	0,92	1	1
98.	<u>S. urophyllus</u> Conrath	1	1	1,08	1	1
99.	<u>S. scitus</u> Hutchinson & Burt Davy	1	1	0,92	1	1
101.	<u>S. glaberrimus</u> DC.	1	1	1,08	1	2
102.	<u>S. latifolius</u> DC.	1	1	1,00	1	2
103.	<u>S. retrorsus</u> DC.	1	1	0,93	1	1
104.	<u>S. othonniflorus</u> DC.	1	1	0,88	1	2
107.	<u>S. brachypodus</u> DC.	1	1	1,00	1	2
108.	<u>S. pleistocephalus</u> Spencer Moore	1	1	1,00	1	1
109.	<u>S. mikanioides</u> (Otto ex) Harvey	1	1	0,77	1	2
110.	<u>S. deltoideus</u> Lessing	1	1	1,09	1	1
111.	<u>S. tamoides</u> DC.	1	1	0,92	1	2
116.	<u>S. helminthioides</u> (Schultz Bipontinus) Hilliard	1	1	0,92	1	1
117.	<u>S. barbertonicus</u> Klatt	1	1	0,73	1	2
118.	<u>S. breviflorus</u> Hilliard	1	2	0,88	1	1
119.	<u>S. viminalis</u> Bremekamp	1	2	0,91	1	1
120.	<u>S. radicans</u> (L.f.) Schultz Bipontinus	1	1	0,67	1	1
121.	<u>S. cissampelinus</u> (DC.) Schultz Bipontinus	1	1	1,17	1	1
122.	<u>S. fulgens</u> (J.D. Hooker) Nicholson	1	2	1,00	1	1
124.	<u>S. transvaalensis</u> Bolus	1	1	1,15	1	1

APPENDIX C continued

The numbers in the left hand margin of all the following species are for identification purposes only.

CAPE HETEROCHROMOUS NON-YELLOW (PURPLE) SENECIOS

200. <u>S. grandiflorus</u> Berg.	1	1	1,00	1	1
201. <u>S. cakilefolius</u> DC.	1	1	1,00	1	1
202. <u>S. arenarius</u> Thunb.	1	1	1,00	1	1
203. <u>S. multibracteatus</u> Harv.	1	1	1,00	1	2
204. <u>S. elegans</u> L.	1	1	1,00	1	2

NON-SOUTHERN AFRICAN SENECIOS

210. <u>S. vulgaris</u> L.	1	1	1,14	1	1
212. <u>S. viscosus</u> L.	1	1	1,10	1	2
213. <u>S. gallicus</u> Chaix	1	1	1,08	1	1
214. <u>S. californicus</u> DC.	1	1	1,17	1	1
215. <u>S. vernalis</u> Waldst. & Kit.	1	1	0,92	1	1
216. <u>S. sylvaticus</u> L.	1	1	1,17	1	1
217. <u>S. desfontainei</u> Druce	1	1	0,64	1	1
219. <u>S. erectitoides</u> Bak.	1	1	1,13	1	1
220. <u>S. laetus</u> Willd.	1	2	1,00	1	1

SENECIOS OF UNCERTAIN TAXONOMIC POSITION AND OTHER GENERA IN THE TRIBE SENECEIONEAE

SENECIOS OF UNCERTAIN TAXONOMIC POSITION (inc. sed. - C. Jeffrey, pers. comm.)

223. <u>S. syringifolius</u> O. Hoffm.	1	2	1,00	1	1
224. <u>S. hockii</u> De Wild. & Muschl.	1	1	1,00	1	2

OTHER GENERA IN THE TRIBE SENECEIONEAE

225. <u>Crassocephalum cernuum</u> (L.f.) Moench	1	1	1,00	1	1
226. <u>Emilia flammea</u> Cass.	1	1	0,91	1	1
227. <u>Gynura auriculata</u> Cass.	1	2	1,25	1	1
228. <u>Kleinia grandiflora</u> ined. (syn. <u>Notonia grandiflora</u> DC.)	1	2	1,00	1	1
229. <u>Kleinia neriifolia</u> Haw.	1	1	1,17	1	1
232. <u>Cineraria geifolia</u> L.	1	1	0,93	1	2

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