

NEW CALEDONIA POLLEN FLORA

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Extract of pollen and spore images from Appendix 2 in **Stevenson, J., 1998. Late Quaternary Environmental Change and the Impact of Melanesian Colonisation in New Caledonia. Unpublished PhD Thesis, University of New South Wales, Kensington.**

Note

This information has been prepared for students and researchers interested in applying comprehensive palaeoecological techniques. It is open to use by everyone with the proviso that its use is cited in any publications, using the URL as the place of publication. Any comments regarding the information found here should be directed to the author at the above address.

Pollen Flora for New Caledonia

Brief morphological descriptions and photographs of the pollen and spore reference collection from New Caledonia are contained in this appendix. Pollen grains were obtained from both herbarium and field collections. The herbarium specimens are from the Royal Botanic Gardens, Sydney. Fresh material was collected by myself during fieldwork or by Stephane McCoy during the course of his fieldwork and identified by staff at the ORSTOM herbarium, Noumea.

Reference material was prepared using standard acetolysis techniques. These are outlined in Appendix 1. The reference material was mounted in silicone oil, the same mounting medium used for the fossil pollen samples. All the images were recorded on Kodak 100 ASA colour print film using a Carl Zeiss photomicroscope under x 40 objective. An attempt was made to produce images using a x100 planapochromatic oil immersion objective. However, the silicone oil mounting medium and the equipment available lead to severe biofringence around the grains. All images were therefore produced at 400 x scale instead of the usual 1000 x. The scale on these commercially developed colour photographs is 1 mm = 1.35 μ m.

The descriptions of the pollen grains and fern spores precede the photographs and are arranged in alphabetical order by family. Terminology used is based on Erdtman (1952), Faegri and Iversen (1964) and Huang (1972). Of special note is the terminology used to describe the aperture type of the 3C3P grains. This follows Huang (1972) and is illustrated in Figure A2-1 below. Size measurements are 'typical' rather than based on a number of systematic measurements.

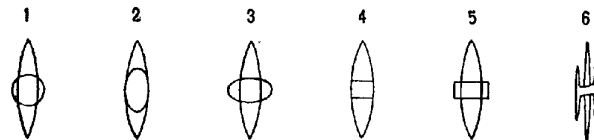


Figure A2-1: Aperture types at equatorial view

- | | |
|------------------------------|-----------------------------|
| 1 Os circular | 4 Os transversally parallel |
| 2 Os longitudinally elliptic | 5 Os rectangular |
| 3 Os transversally elliptic | 6 Os H-shaped |

Each description is accompanied by a page and plate number in brackets for the corresponding photographs. For example (269/4-5) reads as page 269, plates 4 to 5.

ACANTHACEAE

Acanthus sp.

3C

(269/1)

Shape in equatorial view prolate (~ 50 x 25 μm); amb circular.
Reticulate; exine 1.5 μm .
Colpi almost reach poles.

AGAVACEAE

Cordyline sp.

1 colpate

(269/2)

Elliptical (~ 28 x 21 μm); colpus to pole.
Scabrate; exine 1.5 μm .

ANACARDIACEAE

Euroshinus elegans Engler

3C3P

(269/3)

Shape in equatorial view prolate (28 x 24 μm); amb inter-hexagonal (21 μm across).
Finely reticulate; exine >1.5 μm .
Aperture type: longitudinally elliptic.

Euroshinus sp.

3C3P

(269/4-5)

Shape in equatorial view prolate (30 x 26 μm)
Reticulate; exine ~ 1.5 μm .
Aperture type: longitudinally elliptic.

APOCYNACEAE

Alstonia coriacea Pancher ex S.Moore

3C3P

(269/6-8)

Shape in equatorial view circular (~ 26 μm), amb triangular concave (~ 22 μm across).
Scabrate or granular surface; exine ~ 2 μm .
Aperture type: transversally elliptic.

Cerberiopsis candelabra Vieillard ex Pancher & Sebert

3C3P

(269/9-11)

Shape in equatorial view oblate (31 x 44 μm), amb circular (~ 41 μm across).
Granular surface; exine ~ 2.5 μm (slightly thicker along colpus edge).
Aperture drop type, circular. Colpi almost to poles.

Parsonsia sp.

3-5 porate

(269/12-14)

Shape in equatorial view sub-spheroidal (33 x 28 μm), amb circular (~ 28 μm across).
Scabrate; exine < 1.5 μm .
Pores annulated, 4 μm across.

Rauvolfia semperflorens (Muell. Arg.) Schltr.

Parasyncolporate

(269/15-17)

Shape in equatorial view oblate (24 x 35 μm), amb circular (~ 35 μm across).
Granular surface; exine ~ 1.5 μm (>3.5 μm at colpi).
Aperture type: circular. Meridional crests bordering colpi psilate.

AQUILIFOLIACEAE
Ilex serbertii Pancher

3C3P (269/18-20)
Shape in equatorial view sub-spheroidal (26 x 24 μm), amb circular (~ 24 μm across).
Gemmate; exine 5 μm thick.
Aperture type: circular. Colpi psilate

ARALIACEAE
Apiopetalum velutinum Baillon

3C3P (269/21-23)
Shape in equatorial view prolate (29 x 23 μm), amb circular (~ 23 μm across).
Reticulate; exine > 2 μm .
Aperture type: longitudinally elliptic. Colpi almost to poles.

Dizygothea coenosa Viguiier

3C3P (270/1-4)
Shape in equatorial view prolate (30 x 26 μm); amb sub-angular (23 μm).
Finely reticulate to scabrate; exine ~ 1.5 μm .
Aperture type: transversally elliptic.

Meryta coriacea Baillon

3C3P (270/5-7)
Shape in equatorial view prolate to sub-oblate (16 x 15 μm); amb sub-angular (15 μm).
Reticulate; exine ~ 1.5 μm .
Aperture type: transversally elliptic. Constriction around longitudinal colpus leads to dumb bell shape.

Meryta denhamii Seeman

3C3P (270/8-11)
Shape in equatorial view spheroidal (26 μm); amb sub-angular (26 μm).
Reticulate; exine ~ 1.5 μm .
Aperture type: transversally elliptic.

Myodocarpus fraxinoides Brongniart & Gris.

3C3P (270/12-13)
Shape in equatorial view prolate (31 x 25 μm); amb sub-angular (25 μm).
Finely reticulate to scabrate; exine ~ 1.5 μm .
Aperture type: transversally elliptic. Constriction around longitudinal colpus leads to dumb bell shape.

Myodocarpus pachyphyllus Harms

3C3P (270/14-15)
Shape in equatorial view oblate (18 x 25 μm); amb sub-angular (25 μm).
Reticulate; exine ~ 1.5 μm .
Aperture type: circular. Colpi psilate.

Schefflera emilana Baillon

3C3P (270/16-18)
Shape in equatorial view prolate (35 x 28 μm); amb semi-lobate (30 μm).
Reticulate; exine ~ 1.5 μm (5 μm at pore).
Aperture type: transversally elliptic.

ARAUCARIACEAE

Agathis moorei (Lindley) Masters

Inaperturate (271/1-3)
Spheroidal; 28 µm.
Granulate; exine ~ 2 µm.

Agathis ovata (C. Moore) Warburg

Inaperturate (271/4-5)
Elliptical to spheroidal; around 36 µm across.
Granulate; exine ~ 2-3 µm thick.

Araucaria columnaris (J.R. & G. Forster) J.D. Hooker

Inaperturate or 1 colpate (271/6-8)
Spheroidal (~ 55 µm).
Granulate; exine ~ 2 µm.

Araucaria laubenfelsii Corbasson

Inaperturate or 1 colpate (271/9-10)
Spheroidal (~ 65 µm).
Granulate; exine ~ 2 µm.

BIGNONIACEAE

Deplanchea speciosa Vieillard

3C (272/1-2)
Shape in equatorial view almost spherical (~ 45 - 47 µm); amb circular (~ 39 µm).
Reticulate; exine ~ 2 µm thick.
Meridonal colpus large tear with ragged edges.

CLUSIACEAE

Calophyllum caledonicum Vieillard

3C3P (272/3-5)
Shape in equatorial view oblate (23 x 25 µm); amb angular (25 µm).
Psilate; exine ~ 1.5 µm.
Aperture type: transversally elliptic..

Garcinia neglecta Vieillard

Stephanocolporate (272/6-8)
Shape in equatorial view prolate (19 x 16 µm); amb circular (17 µm).
Reticulate; exine > 1.5 µm.
Aperture type: longitudinally elliptic. Colpi psilate.

Montrouzeria gabriellae Baillon

4C4P (272/9-12)
Shape in equatorial view spheroidal (~ 40 µm); amb square (40 µm).
Granulate; exine 1.5 µm.
Aperture drop type; pore circular (~ 9 µm across)

Montrouzeria verticillata Planchon & Triana

4C4P (272/13-16)
Shape in equatorial view spheroidal (~ 31 µm); amb square (31 µm).
Granulate; exine 1.5 µm.
Aperture drop type, circular (~ 6 µm across, sometimes less)

Montrouzeria sphaeroidea Pancher ex Planchon & Triana

4C4P (272/17-19)
Shape in equatorial view spheroidal (~ 35 µm); amb square (35 µm).
Granulate; exine 1.5 µm.
Aperture type: rectangular.

COMBRETACEAE
Lumnitzera littorea

6C6P (272/20-21)
Shape in equatorial view oblate (~ 29 x 36 µm); amb circular (~ 29 µm).
Psilate to finely scabrate; exine ~ 3 µm thick.
Aperture type: longitudinally elliptic.

CUNONIACEAE
Acsmithia austrocaledonica (Brongniart & Gris) Hoogland

3C3P (273/1)
Shape in equatorial view spherical (~ 11.5 µm); amb sub-angular, open (~ 11.5 µm across).
Psilate to slightly scabrate; exine ~ 1.5 µm.

Acsmithia collina

3C3P (273/2)
Shape in equatorial view spherical (~ 9.5 µm); amb: inter-hexagonal (~ 9.5 µm across).
Psilate; exine ~ 1.5 µm.

Codia albifrons Vieillard ex Guillaumin

2C2P (273/3)
Shape in equatorial view prolate (~ 10 µm).
Psilate; exine ~1.5 µm.

Codia discolor (Brongniart & Gris) Guillaumin

2C2P (273/4)
Shape in equatorial view prolate (~ 10 µm).
Psilate; exine ~ 1.5 µm.

Codia nitidia Schlecter

2C2P (273/5)
Shape in equatorial view prolate (~ 10 µm).
Psilate; exine ~ 1.5 µm.

Codia obcordata Brongniart & Gris

2C2P (273/6)
Shape in equatorial view prolate (~ 10 µm).
Psilate; exine ~ 1.5 µm.

Cunonia austrorubens Schlecter

3C3P (273/7-9)
Shape in equatorial view oblate (11 x 15 µm); amb sub-angular (~ 11 - 15 µm).
Psilate; exine ~ 1.5 µm, thins towards colpi.
Aperture type transversally elliptic.

Cunonia austrocaledonica Brongniart ex Guillaumin

3C3P (273/10)
Shape in equatorial view prolate (~ 13 µm); amb sub-angular (~ 12 µm).
Psilate; exine ~ 1.5 µm, thins towards colpi.

- Cunonia bullata* Brongniart & Gris
- 3C3P (273/11)
Shape in equatorial view oblate (~ 10 µm); amb sub-angular (~ 10 µm).
Psilate; exine ~ 1.5 µm, thins towards colpi.
- Cunonia pterophylla* Schlechter
- 3C3P (273/12)
Shape in equatorial view oblate (~ 10 µm); amb sub-angular (~ 13.5 µm).
Psilate; exine ~ 1.5 µm, thins towards colpi.
- Cunonia pulchella* Brongniart & Gris
- 3C3P (273/13)
Shape in equatorial view prolate (~ 12 µm); amb sub-angular (~ 11 µm).
Psilate; exine ~ 1.5 µm, thins towards colpi.
Aperture type: transversally elliptic.
- Geissois pruinosa* Brongniart
- 2C2P (273/14-15)
Shape in equatorial view prolate (~ 12 - 14 µm).
Finely reticulate; exine ~ 1.5 µm.
- Pancheria communis* E.G. Baker
- 3C3P (273/18)
Shape in equatorial view oblate (~ 12 x 15 µm); amb circular (15 µm).
Reticulate; exine ~ 1.5 µm.
- Pancheria elegans* Brongniart & Gris
- 3C3P (273/16-17)
Shape in equatorial view prolate (~ 12 x 11 µm); amb circular (~ 11 µm).
Psilate; exine ~ 1.5 µm.
- Pancheria engelariana* Schlechter
- 3C3P (273/21-22)
Shape in equatorial view prolate (~ 12 x 11 µm); amb (11 µm).
Psilate; exine ~ 1.5 µm.
- Pancheria glateroides*
- 3C3P (273/19-20)
Shape in equatorial view oblate (~ 13.5 x 15 µm); amb circular (~ 13 - 15 µm).
Psilate; exine ~ 1.5 µm.
- Pancheria hirsuta* Vieillard ex Pampanini
- 3C3P (273/23-24)
Shape in equatorial view prolate (15 x 13.5 µm); amb circular (~ 13.5 µm).
Psilate; exine ~ 1.5 µm.
Pore 'H' shaped.
- DILLENIACEAE
- Hibbertia altigena* Schlechter
- 3C3P (274/3-4)
Shape in equatorial view almost spherical (~ 16 x 14.5 µm); amb circular (~ 14.5 µm).
Finely reticulate; exine ~ 1.5 µm thick.
Aperture type: transversally parallel. Colpi psilate.
- Hibbertia emarginata* Guillaumin
- 3C3P (274/5-6)
Shape in equatorial view almost spherical (~ 16 x 14.5 µm); amb circular (~ 14.5 µm).

Finely reticulate; exine ~ 1.5 µm thick.
Aperture type: transversally parallel. Colpi psilate.

Hibbertia francii

3C3P (274/7-8)
Shape in equatorial view almost spherical (~ 16 x 14.5 µm); amb circular (~ 14.5 µm).
Psilate; exine ~ 1.5 µm thick.
Aperture type: longitudinally elliptic. Colpi psilate.

Hibbertia lucens Brongniart & Gris ex Sebert & Pancher

3C3P (274/9-10)
Shape in equatorial view almost spherical (~ 16 x 14.5 µm); amb circular (~ 14.5 µm).
Psilate; exine ~ 1.5 µm thick.
Aperture type: transversally parallel. Colpi psilate.

Hibbertia trachyphylla Schlecter

3C3P (274/11-12)
Shape in equatorial view oblate (~ 13 µm at equator); amb circular (~ 13 µm).
Finely reticulate; exine ~ 1.5 µm thick.
Aperture type: transversally parallel. Colpi psilate.

Hibbertia virotti

3C3P (274/13-14)
Shape in equatorial view spherical (~ 19 µm); amb circular (~ 19 µm).
Psilate; exine ~ 1.5 µm thick.
Aperture type: longitudinally elliptic. Colpi textured.

ELAEOCARPACEAE

Dubouzetia caudiculata Sprague

3C3P (274/15)
Shape in equatorial view varies from prolate to spherical (~ 11.5 x 10 µm).
Psilate; exine <1.5 µm thick.
Aperture type: longitudinally elliptic.

Dubouzetia elegans Brongniart & Gris

3C3P (274/16)
Shape in equatorial view varies from prolate to spherical (~ 14.5 µm).
Psilate; exine ~ 1.5 µm thick tapering in thickness toward pore.
Aperture type: longitudinally elliptic.

Elaeocarpus leratii Schlecter

3C3P (274/17-18)
Shape in equatorial view varies from prolate to spherical (~ 11.5 x 10 µm).
Psilate; exine <1.5 µm thick.
Aperture type: transversally elliptic. Constriction at longitudinal colpus leads to dumb bell shape.
Aperture type: longitudinally elliptic.

Elaeocarpus nodosus Baker f.

3C3P (274/19)
Shape in equatorial view prolate (~ 10 x 8 µm).
Psilate; exine <1.5 µm thick.

Elaeocarpus ovigenus Brongniart & Gris

3C3P (274/20)
Shape in equatorial view spherical (~ 11.5 µm).
Psilate; exine <1.5 µm thick.
Aperture type: transversally elliptic. Constriction at longitudinal colpus leads to dumb bell shape.

EPACRIDACEAE

Dracophyllum involucreatum Brongniart & Gris

Tetrad (3C) (275/1-2)

Tetrad ~ 40.6 µm across.

Coarsely granular, some irregular projections; exine ~ 3 µm thick.

ESCALLIONACEAE

Argophyllum ellipticum Schlechter

3C3P (275/3-4)

Shape in equatorial view prolate (~ 36 x 22 µm); amb inter-angular.

Coarsely scabrate; exine 1.5 µm thick, thicker at pore.

Aperture type: longitudinally elliptic. Colpi appear ribbed.

Polyosma podophylla

3C3P (275/5-6)

Shape in equatorial view spherical (~ 22 µm across); amb sub-angular.

Finely reticulate; exine ~ 1.5 µm thick, tapers toward colpi.

Aperture type: circular. Colpi psilate.

EUPHORBIACEAE

Austrobuxus clusiceus (Baillon) A. Shaw

Stephanoporate (275/7-8)

Shape in equatorial view spherical (~ 33 µm across).

Echinate, elements 4.5 - 5 µm long; exine 3 µm thick (nexine 1.5 µm, sexine 1.5 µm).

Pores circular.

Austrobuxus ellipticus

Stephanoporate (275/9-10)

Shape in equatorial view spherical (~ 25 µm across).

Echinate, elements 1.5 - 2 µm long; exine > 2 µm thick..

Pores circular.

Longetia buxoides Baillon

Stephanocolporate (275/11-14)

Shape in equatorial view oblate; amb circular (~ 22 µm across).

Finely reticulate, exine ~ 2.75 µm, at pores ~ 5 µm thick..

Aperture type: vestibulum, pore circular.

Macaranga alchorneoides Pax & Liegelshiem

3C3P (275/15-16)

Shape in equatorial view oblate (~ 13 x 18 µm); amb inter-angular (18 µm across).

Reticulate; exine > 1.5 µm.

Aperture type: transversally elliptic.

Macaranga coriacea Mueller Argovie

3C3P (275/17)

Shape in equatorial view oblate (~ 14 x 18 µm); amb circular (18 µm across).

Finely reticulate; exine > 1.5 µm, thicker at pore.

Aperture type: transversally elliptic.

Macaranga fulvescens Schlechter

3C3P (275/18)

Shape in equatorial view oblate (~ 14 x 18 µm); amb inter-angular (18 µm across).

Finely reticulate; exine > 1.5 µm, thicker at pore.

Aperture type: transversally elliptic.

Phyllanthus casearoides S. Moore

Syncolporate (275/19-20)

Shape in equatorial view oblate (~ 14.5 x 20 µm); amb circular (~ 20 µm across).

Reticulate; exine 1.5 µm.
Pore circular.

Phyllanthus chamaecerasus Baillon

Syncolporate (275/21-22)
Shape in equatorial view oblate (~ 17.5 x 23 µm); amb circular (~ 23 µm across).
Reticulate; exine 1.5 µm.
Pore circular.

Phyllanthus yahouensis Schlecter

Syncolporate (275/23-24)
Shape in equatorial view oblate (~ 17.5 x 23 µm); amb circular (~ 23 µm across).
Reticulate; exine 1.5 µm.
Pore circular.

FLACOURTIACEAE

Homalium austrocaledonicum Seeman

3C3P (276/1-2)
Shape in equatorial view prolate (~ 21.5 x 12 µm).
Psilate, exine ~ 1.5 µm.
Aperture type: transversally elliptic.

Homalium deplanchei (Vieillard) Warb.

3C3P (276/3-4)
Shape in equatorial view prolate (~ 19 x 12 µm).
Psilate, exine ~ 1.5 µm.
Aperture type: transversally elliptic.

Homalium kanaliense (Vieillard) Briquet

3C3P (276/5-6)
Shape in equatorial view prolate (~ 21 x 13 µm).
Psilate, exine ~ 1.5 µm.
Aperture type: transversally elliptic.

FLAGELLARIACEAE

Flagellaria neocaledonica Schlecter

Monoporate (276/7-8)
Spherical, sometimes flattened on one side (~ 20 µm).
Scabrate.

GESNERIACEAE

Coranthera clarkeana Schlecter

3C3P (276/9)
Spherical (~ 12 µm).
Coarsely reticulate.

GOODENIACEAE

Scaevola beckii Zahlbruckner

3C3P (276/10)
Shape in equatorial view prolate (36 x 26 µm).
Reticulate; exine ~ 3.5 µm.
Reticulate pattern diminishes toward colpi; colpi large and psilate.
Aperture type: transversally elliptic.

Scaevola montana Labill.

3C3P (276/11-13)
Shape in equatorial view prolate (40 x 36 µm); amb sub-angular (~ 36 µm across).
Reticulate; exine ~ 3.5 µm; nexine 1.5 µm, sexine > 1.5 µm.

Reticulate pattern diminishes toward colpi; colpi large and psilate.
Aperture type: transversally elliptic with vestibulum.

ICACINACEAE

Apodytes clussifolia (Baillon) Villiers

3P (276/14-15)
Shape in equatorial view oblate; amb angular (~ 13 µm across).
Reticulate; exine < 1.5 µm.
Pore circular to elliptic.

Citronella macrocarpa Huerlimann

3C3P (276/16-18)
Shape in equatorial view spherical (23 µm); amb circular (~ 23 µm across) colpi can be open or closed.
Reticulate.
Aperture type: longitudinally elliptic.

LECTHYDICACEAE

Barringtonia neo-caledonica Vieillard

3C (276/19-20)
Shape in equatorial view prolate (~ 45 x 32 µm); amb circular (~ 32 µm across) with very open colpi.
Reticulate; exine 1.5 µm.
Distinct margin to colpi, colpi smooth.

LILIACEAE

Xeronema moorei Brongniart & Gris

Monocolpate (276/22)
43 x 32 µm.
Coarsely reticulate.

LOGANIACEAE

Geniostoma balansaeum Baillon

3P (276/23-24)
Shape in equatorial view oblate (25 x 34 µm); amb circular (~ 34 µm across).
Finely reticulate; exine 1.5 µm, thickens at pore to ~ 4 - 4.5 µm.
Pores are common and circular; ~ 6 µm across.

Geniostoma celastrineum Baillon

4P (277/1-2)
Shape in equatorial view almost spherical; amb circular (~ 24 µm across).
Finely reticulate; exine 1.5 µm, thickens at pore to ~ 2 µm.
Pores are circular and club type; ~ 6 µm across.

Geniostoma densiflorum Baillon

3P - 4P (277/3-4)
Shape in equatorial view almost spherical; amb circular (~ 24 µm across).
Psilate; exine 1.5 µm, thickens at pore to ~ 2 µm.
Pores are circular and club type; ~ 6 µm across.

Geniostoma erythrospermum Baillon

4P (277/5-6)
Shape in equatorial view almost spherical; amb circular (~ 24 µm across).
Scabrate; exine 1.5 µm, thickens at pore to ~ 2 µm.
Pores are circular and club type; ~ 6 µm across.

Geniostoma vestitum Baillon

3P (277/7)
Shape in equatorial view almost spherical; amb circular (~ 24 µm across).
Psilate; exine 1.5 µm, thickens at pore to ~ 4 - 4.5 µm.
Pores are circular and club type; ~ 6 µm across.

MALPIGHIACEAE

Acridocarpus austrocaledonica Baillon

3C3P (277/8)
Shape in equatorial view prolate to sub-oblate; amb triangular (~ 13 µm across).
Psilate; exine 1.5 µm, ~ 3µm at aperture.

MELASTOMATACEAE

Melastoma denticulata

6C6P (277/9-10)
Shape in equatorial view spherical (16 µm); amb circular (~ 19 µm across).
Psilate, exine < 1.5 µm.
Aperture type: transversally elliptic, colpi almost to poles.

MELIACEAE

Dysoxylum francii C. DC.

4C4P (277/11-12)
Shape in equatorial view spherical (~ 33 µm across); amb square (~ 33 µm across).
Scabrate; exine 1.5 µm, thickening to 6 µm at aperture.
Aperture type: circular and club type.

Dysoxylum glomeratum Vieillard

4C4P (277/13-14)
Shape in equatorial view sub-oblate (29 x 33 µm); amb square (~ 33 µm across).
Scabrate; exine 1.5 µm, thickening to 6 µm at aperture.
Aperture type: circular and club type.

Dysoxylum rufescens Vieillard

4C4P (277/15-16)
Shape in equatorial view sub-oblate (29 x 33 µm); amb square (~ 33 µm across).
Scabrate; exine 1.5 µm, thickening to 6 µm at aperture.
Aperture type: circular and club type.

MONIMIACEAE

Hedycarya cupulata Baillon

Inaperturate (277/17)
Shape in equatorial view almost spherical (~ 19 µm across); amb circular (~ 19 µm across).
Coarsely granulate; exine < 1.5 µm.

MYRICACEAE

Canomyrica monticola Guillaumin

3P (277/18-20)
Shape in equatorial view oblate (22 x 27.5 µm); amb semi-angular (~ 32 µm across).
Coarsely scabrate; exine < 1.5 µm.
Pores are atrium type and circular.
(Similar to pollen grains of the Casuarinaceae).

MYRSINACEAE

Tapumosperma sp.

3C3P (277/21-24)
Shape in equatorial view almost spherical (22 x 20 µm); amb circular (~ 20 µm across).
Psilate; exine ~ 1.5 µm.
Aperture type transversally elliptic; constriction at colpus leads to bow tie shape.

MYRTACEAE

- Archirhodomirtus baladensis* (Brongniart & Gris) Burret (278/1-3)
 Parasyncolporate
 Polar view ~ 19 µm across (island very faint).
 Scabrate; exine ~ 1.5 µm, ~ 3 µm at pore.
 Aperture type: transversally elliptic.
- Archirhodomirtus viellardii* (Brongniart & Gris) Burret (278/4)
 Parasyncolporate
 Polar view ~ 19 µm across (island very faint).
 Coarsely scabrate; exine ~ 1.5 µm, ~ 3 µm at pore.
 Aperture type: transversally elliptic.
- Arillastrum gummiferum* Pancher ex Baillon (278/5)
 Brevi-colporate
 Polar view ~ 11.5 µm across.
 Psilate; exine <1.5 µm.
 Aperture type: transversally elliptic.
- Austromirtus sp.* (278/6-8)
 Brevi-colporate
 Polar view ~ 13 µm across.
 Psilate; exine <1.5 µm.
 Aperture type: transversally elliptic.
- Baekea le rattii* Schlecter (278/9-10)
 Brevi-colporate
 Polar view ~ 15 µm across.
 Psilate; exine < 1.5 µm.
 Aperture type: transversally elliptic.
- Carpolepis laurifolia* (Brongniart & Gris) Dawson ined. (278/11-12)
 Parasyncolporate
 Equatorial view 10 x 19 µm; polar view ~ 19 µm across.
 Psilate; exine ~ 1.5 µm, ~ 2.5 µm at pore.
 Aperture type: transversally elliptic.
- Cloezia aquarum* Guillaumin (278/13)
 Parasyncolporate
 Polar view ~ 19 µm across; island ~ 7µm across.
 Psilate; exine ~ 1.5 µm.
 Aperture type: transversally elliptic.
- Jambosa canalensis* Vieillard (278/14-15)
 Parasyncolporate
 Equatorial view ~ 23 x 11.5 µm; polar view ~ 19 µm across.
 Scabrate; exine ~ 1.5 µm, ~ 3 µm at pore.
 Aperture type: transversally elliptic.
- Melaleuca brongniartii* Daniker (278/16-17)
 Parasyncolporate
 Polar view ~ 17.5 µm across.
 Psilate to slightly scabrate; exine ~ 1.5 µm, < 3 µm at pore.
 Aperture type: transversally elliptic.

Psidium guajava L.

Parasyncolporate (3-4 colporate, occasionally 5) (278/18)
Polar view ~ 17.5 µm across (island very faint).
Scabrate.
Aperture type: transversally elliptic.

Piliocalyx sp.

Parasyncolporate (278/19-20)
Polar view ~ 23 µm across.
Psilate; exine 1.5 µm, ~ 3 µm at pore.
Aperture type: transversally elliptic.

Syzigium balanse

Parasyncolporate (278/21)
Polar view ~ 17.5 µm across.
Psilate
Aperture type: transversally elliptic.

Syzigium laterifolium Brongniart & Gris

Parasyncolporate (278/22)
Polar view ~ 9 µm across.
Psilate.
Aperture type: transversally elliptic.

Syzigium undulatum

Parasyncolporate (278/23-24)
Equatorial view 10 x 16 µm; Polar view ~ 16 µm across.
Psilate; exine 1.5 µm, ~ 3 µm at pore.
Aperture type: transversally elliptic.

Tristaniopsis callobuxus Brongniart & Gris

Parasyncolporate (?) (Material very poor quality) (279/1)
Polar view ~ 11.5 µm across.
Psilate

Uromyrtus supra-axillaris (Guillaumin) Burret

Brevi-colporate (279/2-4)
Polar view ~ 11.5 µm across.
Psilate to slightly scabrate.
Aperture type: transversally elliptic.

OLEACEAE

Osmanthus austrocaledonicas (Vieillard) Knoblauch

3C3P (279/5-6)
Shape in equatorial view prolate (20 x 16 µm); amb circular (16 µm).
Supra-reticulate; sculpturing elements in sexine visible.
Aperture type unknown.

PANDANACEAE

Pandanus krauelianis (New Guinea specimen of Haberle [1995])

Monoporate (279/7-8)
Elliptical (kidney bean shaped) (23 x 13 µm).
Psilate; exine < 1.5 µm.
Aperture type: near circular pore at or near one of the long axis poles, often annulated.

Pandanus tectorius Park. (279/9-10)
Monoporate
Elliptical to circular (~ 22 x 17.5 µm).
Echinate; exine < 1.5 µm, spine ~ 1.5 - 2 µm.
Pore not always clearly visible, rarely annulated.

PASSIFLORACEAE
Passiflora suberosa L.

Apertures not established (279/11)
Elliptical (43.5 x 35 µm).
Reticulate to rugulate.

PIPERACEAE
Piper paitensis Schlechter

Monocolpate (279/12)
Elliptical (11 x 9.5 µm).
Scabrate.

PITTOSPORACEAE
Pittosporum boudounii Brongniart & Gris

3C3P (279/13-14)
Shape in equatorial view spherical (30 µm); amb circular (30 µm).
Finely reticulate; exine < 1.5 µm, thickening to 2.5 µm at poles (sculpturing elements in sexine visible).
Aperture type: transversally elliptic.

Pittosporum deplanchii Brongniart & Gris

3C3P (279/15-16)
Shape in equatorial view spherical (27 µm); amb sub-angular (27 µm).
Reticulate; exine ~ 1.5 µm
Aperture type: transversally parallel.

Pittosporum lifuense Guillaumin

3C3P (279/17-19)
Shape in equatorial view prolate (30 x 27.5 µm); amb circular.
Reticulate; exine ~ 3 µm, nexine 1.5 µm, sexine 1.5 µm.
Aperture type: transversally elliptic (constriction at colpus leads to slight dumb bell shape).

Pittosporum loniceroides Brongniart & Gris

3C3P (279/20-22)
Shape in equatorial view prolate (27 x 25 µm); amb sub-angular (25 µm across) colpi open.
Scabrate; exine ~ 1.5 µm, colpi smooth.
Aperture type: transversally elliptic.

Pittosporum paitense Guillaumin

3C3P (279/23-24)
Shape in equatorial view spherical (28 µm); amb circular (28 µm across).
Scabrate; exine ~ 1.5 - 2 µm.
Aperture type: transversally elliptic.

Pittosporum paniculatum Brongniart & Gris

3C3P (280/1-2)
Shape in equatorial view prolate (35 x 31 µm).
Scabrate; exine ~ 1.5 µm.
Aperture type: transversally elliptic.

PODOCARPACEAE

Decussocarpus comptonii (Buchholz) de Laubenfels

Vesiculate (280/3)
 Corpus scabrate.
 Saccus reticulate.
 Most grains crumpled and not suitable for measurement.

Decussocarpus minor (Carriere) de Laubenfels

Vesiculate (280/4-6)
 Corpus scabrate. Around 31 μm long and 23 μm wide.
 Saccus reticulate. Around 20 μm in width.

PROTEACEAE

Garneria sp.

Stephanoporate (6P) (280/7-9)
 Shape in equatorial view oblate (25 x 31 μm); amb hexagonal (31 μm across).
 Echinulate; exine ~ 1.5 μm .
 Pore common and circular, sometimes has ragged appearance.

Grevillea gillvrayi W.J. Hooker

3P (280/10-12)
 Amb angular (~ 46 μm across).
 Coarsely reticulate; exine 3 μm thick.
 Pore circular.

Kermadecia elliptica Brongniart & Gris

3P (280/13-14)
 Amb angular (~ 36 μm across).
 Reticulate; exine ~ 1.5 μm .
 Pore circular.

Kermadecia pronyensis (Guillaumin) Guillaumin

3P (280/15-16)
 Amb angular (~ 40 μm across).
 Reticulate; exine ~ 3 μm , nexine 1.5 μm , sexine 1.5 μm .
 Pore circular.

Kermadecia rotundifolia Brongniart & Gris

3P (280/17-18)
 Amb angular (~ 44 μm across).
 Reticulate; exine ~ 4.5 μm , nexine 1.5 μm , sexine 3 μm .
 Pore circular.

Knightia pronyensis

3P (280/19)
 Amb angular (~ 30 μm across).
 Scabrate; exine ~ 1.5 μm .
 Pore circular, patterning around pore area inside grain.

Knightia strobiliana (Labillardiere) R. Brown

3P (280/20)
 Amb angular (~ 30 μm across).
 Scabrate; exine ~ 1.5 μm .
 Pore circular, patterning around pore area inside grain.

Stenocarpus sp.

3P (280/21-22)
Amb angular (~ 33 µm across).
Reticulate; exine < 3 µm, sexine < 1.5 µm, nexine 1.5 µm, thicker around pore.
Pore circular.

RHAMNACEAE

Alphitonia neocaledonica Guillaumin

3C3P (281/1-2)
Shape in equatorial view varies from prolate to oblate (~ 24 x 21 µm).
Psilate; exine ~ 1.5.
Aperture type: transversally elliptic.

RHIZOPHORACEAE

Crossostylis biflora J.R. & G. Forster

3C3P (281/3)
Shape in equatorial view prolate (~ 13 x 10 µm).
Psilate; exine < 1.5 µm.
Aperture type: rectangular.

Crossostylis grandiflora Pancher ex Brongniart & Gris

3C3P (281/4)
Shape in equatorial view prolate (~ 19 x 14 µm).
Psilate; exine 1.5 µm.
Aperture type: rectangular.

Crossostylis serbertii Brongniart & Gris

3C3P (281/5-6)
Shape in equatorial view prolate (~ 13 x 11.5 µm).
Psilate; exine < 1.5 µm.
Aperture type: transversally elliptic (constriction at colpus gives slight bow tie shape).

Rhizophora sp.

3C3P (281/7-8)
Shape in equatorial view prolate (~ 20 x 18 µm).
Psilate; exine > 1.5 µm.
Aperture type: transversally elliptic.

RUBIACEAE

Atractocarpus heterophyllus Guillaumin & Beauvisage

3P (281/9-10)
Spherical; 30 µm across.
Coarsely reticulate; exine ~ 2.5 µm.
Pore circular and annulated; ~ 3.5 µm across.

Atractocarpus sp.

3P (281/11-12)
Spherical; 30 µm across.
Coarsely reticulate; exine ~ 2.5 µm.
Pore circular and annulated; ~ 3.5 µm across.

Bikkia campanulata (Brongniart) Schlechter

3P (281/13-15)
Shape in equatorial view oblate (~ 39 x 29 µm); amb angular (29 µm across).
Granulate; exine 3 µm.
Pore elliptical and ragged.

- Bikkia macrophylla* (Brongniart) K. Schumann
- 3P (281/16)
 Shape in equatorial view oblate (~ 39 x 29 µm); amb angular (29 µm across).
 Granulate; exine 3 µm.
 Pore elliptical and ragged.
- Coelospermum balansaeenum* Baillon
- 3C3P (281/17-18)
 Shape in equatorial view spherical; amb circular (45 µm across).
 Reticulate; exine 6 µm, nexine 3.5 µm, sexine 2.5 µm.
 Aperture type: circular
- Gardenia aubreyi* Vieillard
- Tetrad (3P) (281/19-20)
 ~ 38 µm across
 Scabrate; exine ~ 1.5 µm.
 Pore circular and thickly annulated.
- Gardenia urvillei* Montrouzier
- Tetrad (3P) (281/21-22)
 ~ 38 µm across
 Coarsely scabrate to reticulate; exine ~ 1.5 µm.
 Pore circular and thickly annulated.
- Ixora* sp.
- 3C3P (NB out of sequence 284/17-20)
 Spherical (20 - 23 µm in diameter).
 Reticulate; exine > 1.5 µm; nexine 1.5 µm, sexine < 1.0 µm.
 Aperture type: transversally elliptic.
- Lindenia vitensis*
- 3C3P (281/23-24)
 Shape in equatorial view oblate (21 x 24 µm).
 Reticulate; exine 2 µm.
 Aperture type transversally elliptic, plus a circular pore.
- Morieriana montana* Vieillard
- 3C3P (282/1-3)
 Shape in equatorial view oblate; amb circular (35 µm).
 Echinata; exine ~ 4.5 µm, nexine 2.5 µm, sexine 2 µm, spines < 1 µm.
 Aperture type: longitudinally elliptic and ragged.
- Normandia neocaledonica* J.D. Hooker
- 3C3P (282/4)
 Shape in equatorial view oblate (~ 32 x 5 µm).
 Reticulate; exine < 3 µm.
 Aperture type: transversally elliptic.
- Psychotria collina* Labillardiere
- 3P (282/5-7)
 Shape in equatorial view spherical to oblate (~ 30 µm across).
 Reticulate; exine 1.5 µm.
 Pore elliptical and ragged.
- Tarenna truncatocalyx* (Guillaumin) Bremekamp
- 3C3P (282/8-9)
 Shape in equatorial view spherical (~ 26 µm); amb circular (~ 26 µm across).
 Reticulate; exine 1.5 µm, ~ 2 µm at pore.
 Aperture type: longitudinally elliptic; pore club type; colpi smooth and almost to poles.

RUTACEAE
Comptonella albiflora

3C3P (282/10-12)
Shape in equatorial view prolate (~ 25 x 20 µm); amb sub-angular (20 µm).
Reticulate; exine ~ 1.5 µm, 2.5 µm at poles where sexine and nexine visible.
Aperture type: transversally elliptic.

Flindersia fournieri

3C3P (282/13-14)
Shape in equatorial view prolate (~ 38 x 26 µm).
Reticulate; exine < 1.5 µm.
Aperture type: transversally elliptic.

Halfordia kendac (Montrouzier) Guillaumin

Syncolporate (282/15-16)
Shape in equatorial view oblate (~ 17 x 19 µm); amb angular (19 µm).
Coarsely granulate; exine < 1.5 µm.
Aperture type: transversally elliptic, colpi smooth.

Zeridium pseudo-obtusifolium Guillaumin

3C3P (282/17-20)
Shape in equatorial view prolate (17 x 14 µm); amb inter-hexagonal (14 µm).
Supra-reticulate; exine 1.5 µm, sculpturing elements in sexine visible.
Aperture type: transversally elliptic.

SANTALACEAE
Santalum austrocaledonicum Vieillard

3C3P (282/21-22)
Shape in equatorial view prolate (32 x 27 µm).
Psilate; exine 1.5 µm, > 2 µm at pore.
Aperture type: circular to elliptic.

SAPINDACEAE
Arytera lepidota Radlkofer

Parasyncolporate (283/1-2)
22 µm across (island < 5 µm).
Reticulate; exine 1.5 µm.
Aperture type: transversally elliptic; atrium type pore.

Cupaniopsis glomeriflora Radlkofer

Parasyncolporate (283/3-4)
22 µm across (island > 5 µm).
Reticulate; exine 1.5 µm.
Aperture type: transversally elliptic; thickening around pore.

Ellatostachys apetala (Labillardiere) Radlkofer

Parasyncolporate (283/5-7)
22 µm across (island 10 µm across).
Reticulate; exine 1.5 µm.
Aperture type: transversally parallel; atrium type pore.

Guio gracilis (Pancher & Sebert) Radlkofer

Parasyncolporate (283/8)
Concave, 22 µm across (island 7 µm across).
Scabrate or finely reticulate; exine ~ 1.5 µm.
Atrium type pore.

SAPOTACEAE

Beccariella serbertii (Pancher) Pierre

4C4P (283/9-10)
 Shape in equatorial view prolate (33 x 22 μm).
 Psilate; exine 1.5 μm , 3 μm around pore.
 Aperture type: transversally elliptic.

Leptostylis petiolata Vink

4C4P (283/11-12)
 Shape in equatorial view prolate (36 x 26 μm).
 Psilate; exine < 3 μm , 3 μm around pore.
 Aperture type: transversally elliptic.

Planchonella cinera (Pancher) Royen

4C4P (283/13-14)
 Shape in equatorial view prolate (35 x 23 μm).
 Psilate; exine >1.5 μm , 3 μm around pore.
 Aperture type: transversally elliptic.

Pycnandra benthamii Baillon

4C4P (283/15-16)
 Shape in equatorial view prolate (36 x 29 μm).
 Scabrate; exine >1.5 μm , 3 μm around pore.
 Aperture type: transversally elliptic.

Pycnandra comptonii (S. Moore) Vink

4C4P (283/17-18)
 Shape in equatorial view prolate (36 x 29 μm).
 Reticulate; exine >1.5 μm , 3 μm around pore.
 Aperture type: transversally elliptic.

Pycnandra controversa (Guillaumin) Vink

4C4P (283/19-20)
 Shape in equatorial view prolate (36 x 29 μm).
 Scabrate; exine 3 μm , 6 μm around pore.
 Aperture type: transversally elliptic.

Pycnandra kaalaensis (Aubreville)

4C4P (283/21-22)
 Shape in equatorial view prolate (33 x 29 μm).
 Scabrate; exine 3 μm , 4.5 μm around pore.
 Aperture type: transversally elliptic.

SIMAROUBACEAE

Soulamea cycloptera Guillaumin

3C3P (284/1)
 Shape in equatorial view prolate (30 x 22 μm); amb inter-hexagonal.
 Striate; exine ~ 1.5 μm .
 Aperture type: transversally elliptic.

Soulamea muelleri Brongniart & Gris

3C3P (284/2)
 Shape in equatorial view prolate (28 x 20 μm); amb inter-hexagonal.
 Striate; exine ~ 1.5 μm .
 Aperture type: transversally elliptic.

	<i>Soulamea pancheri</i> Brongniart & Gris	
3C3P		(284/3-4)
Shape in equatorial view prolate (25 x 19 µm); amb inter-hexagonal.		
Striate; exine ~ 1.5 µm.		
Aperture type: transversally elliptic.		
SMILACACEAE		
	<i>Smilax neo-caledonica</i> Schlecter	
Inaperturate		(284/5)
Spherical; ~ 15 µm across.		
Granulate.		
	<i>Smilax purpurata</i> J.R. & G. Forster	
Inaperturate		(284/6)
Spherical; ~ 15 µm across.		
Granulate.		
STERCULIACEAE		
	<i>Sterculia dzumacensis</i> Guillaumin	
3C3P		(284/7-10)
Shape in equatorial view prolate (25 x 20 µm); amb inter-hexagonal (~ 20 µm).		
Reticulate; exine ~ 1.5 µm.		
Aperture type: transversally elliptic.		
THYMELIACEAE		
	<i>Solmsia calophylla</i> Baillon	
Periporate		(284/11-12)
Spherical (29 µm across).		
Sparsely granulate; exine 3 µm; sexine 1.5 µm and nexine 1.5 µm.		
Pores circular and < 1 µm.		
	<i>Wickstromia indica</i> (L.) Mey	
Periporate		(284/13-14)
Spherical (25 µm across).		
Densely granulate; exine > 3 µm; sexine < 1.5 µm and nexine > 1.5 µm.		
Pores circular and < 1 µm.		
ULMACEAE		
	<i>Celtis hypoleuca</i> Planchon	
3P		(284/15-16)
Spherical (20 µm across).		
Scabrate; exine 1.5 µm.		
Pores annulated and < 2 µm across.		
VERBENACEAE		
	<i>Clerodendron inerme</i> (L.) Gaertner	
3C		(284/1)
Amb circular (80 µm across) colpi open.		
Echinate; exine ~ 2.5 µm, spines quite fine (< 1.5 µm long) and evenly spaced (6-7 µm apart).		
RUBIACEAE (out of sequence)		
3C3P		(284/17-20)
<i>Ixora</i> sp.		

Oxera baladica Vieillard

3C

(285/2)

Amb circular (80 μm across) colpi open.

Echinate; exine $\sim 2.5 \mu\text{m}$; spines $\sim 5 \mu\text{m}$ long and $2.5 \mu\text{m}$ at base; evenly spaced (6-7 μm apart).

Oxera microcalyx Guillaumin

3C

(285/3)

Amb circular (64 μm across) colpi open.

Echinate; exine $\sim 2.5 \mu\text{m}$, spines $< 1.5 \mu\text{m}$ long and $\sim 1.5 \mu\text{m}$ at base; evenly spaced (6-7 μm apart).

Oxera moorieri Vieillard

3C

(285/4)

Amb circular (95 μm across) colpi open.

Echinate; exine $\sim 2.5 \mu\text{m}$, spines $\sim 2 \mu\text{m}$ long and $2.5 \mu\text{m}$ at base. Evenly spaced $\sim 19 \mu\text{m}$ apart.

Oxera pancheri Dubard

3C

(285/5)

Amb circular (75 μm across) colpi open.

Echinate; exine $> 2.5 \mu\text{m}$ thick; spines $\sim 2.5 \mu\text{m}$ long and $\sim 2.5 \mu\text{m}$ at base. Evenly spaced (6-7 μm apart).

Oxera robusta Vieillard

3C

(285/6)

Amb circular (88 μm across) colpi open.

Echinate; exine $\sim 2.5 \mu\text{m}$, spines $\sim 2.5 \mu\text{m}$ long and $< 2.5 \mu\text{m}$ at base. Evenly spaced $\sim 13 \mu\text{m}$ apart.

PTERIDOPHYTES

BLECHNACEAE *Blechnum indicum*

Monolete
36 x 29 μm .
Perine gemmate and $\sim 3 \mu\text{m}$.

(286/1-3)

LINDSACEAE *Sphenomeris chinensis*

Trilete
50 μm across.
Psilate to lightly reticulate; exine $< 3 \mu\text{m}$.
Laurae are prominent raised ridges extending almost entire spore length.

(286/5-6)

Sphenomeris deltoidea

Trilete
80 μm across.
Perine reticulate $\sim 2 \mu\text{m}$ thick.
Lasurae ridges are not prominent and extend three quarters of spore length.

(286/7)

POLYPODIACEAE *Dipteris conjugata*

Monolete
29 x 22 μm .
Psilate; exine $\sim 1.5 \mu\text{m}$.

(286/4)

COMMON RAINFOREST FERNS

No. 27

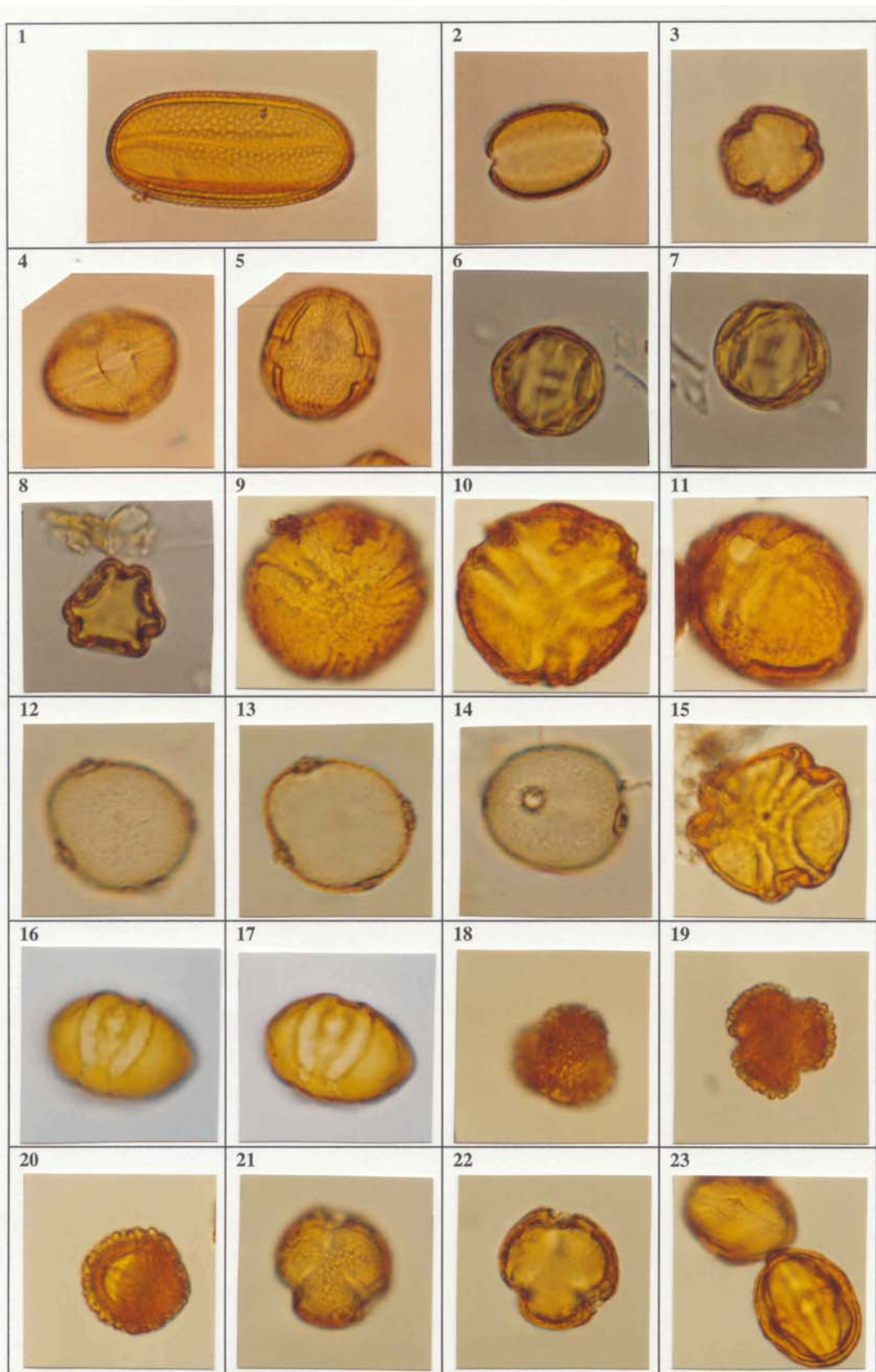
Monolete
Perine granulate $\sim 2 \mu\text{m}$ thick; spore 43 x 28 μm .
Exine scabrate $< 1.5 \mu\text{m}$ thick; spore around 29 x 20 μm .

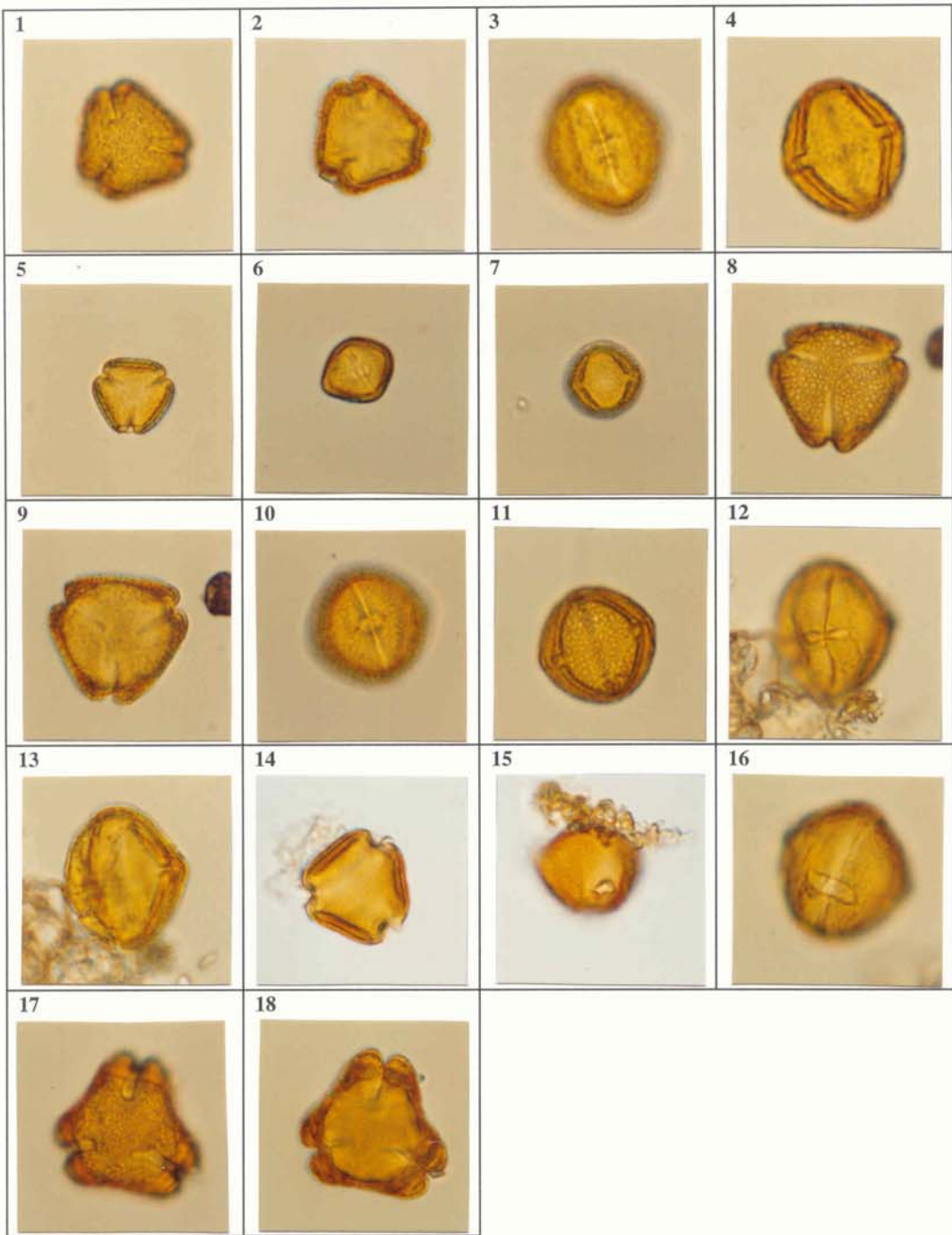
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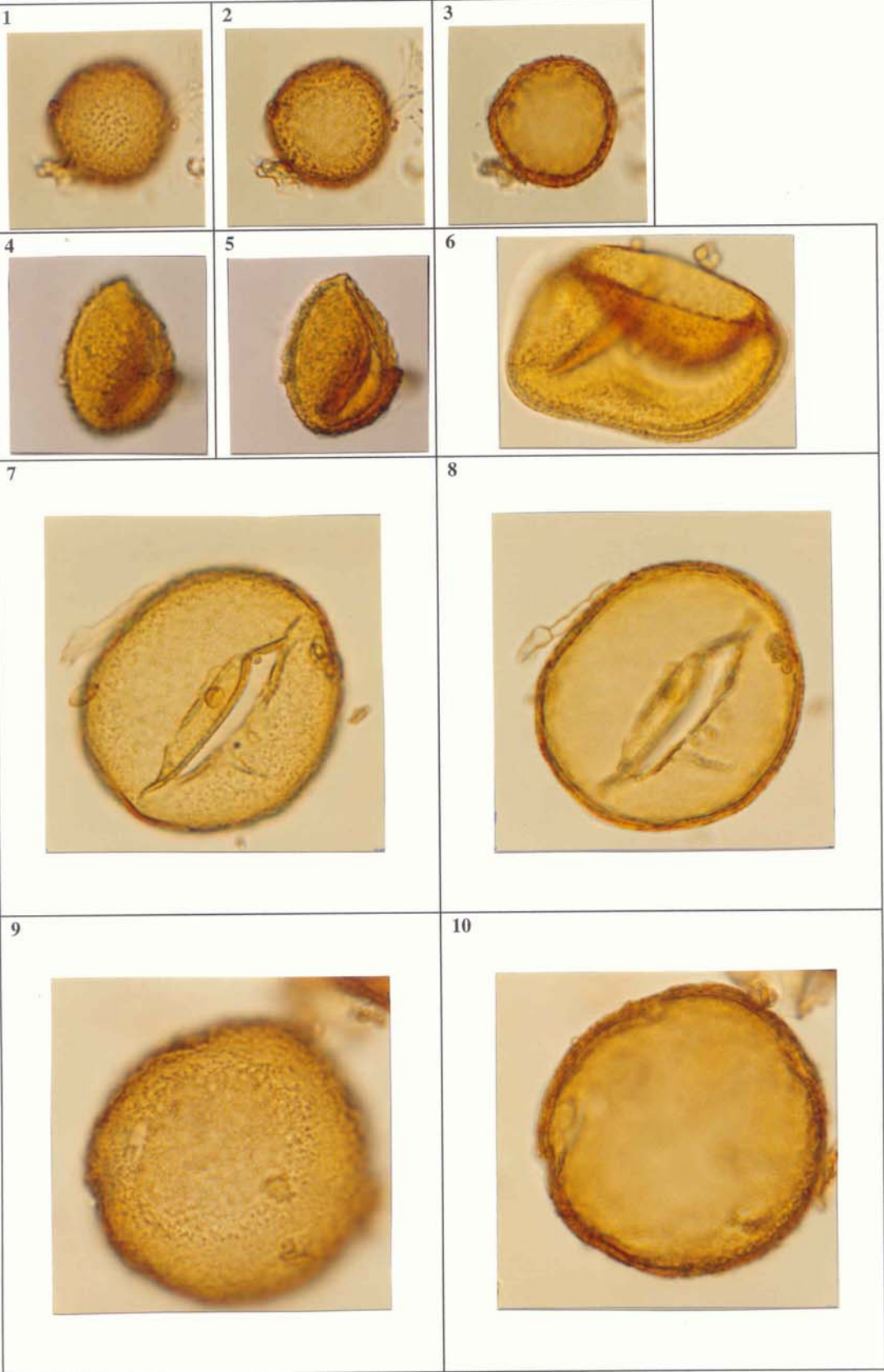
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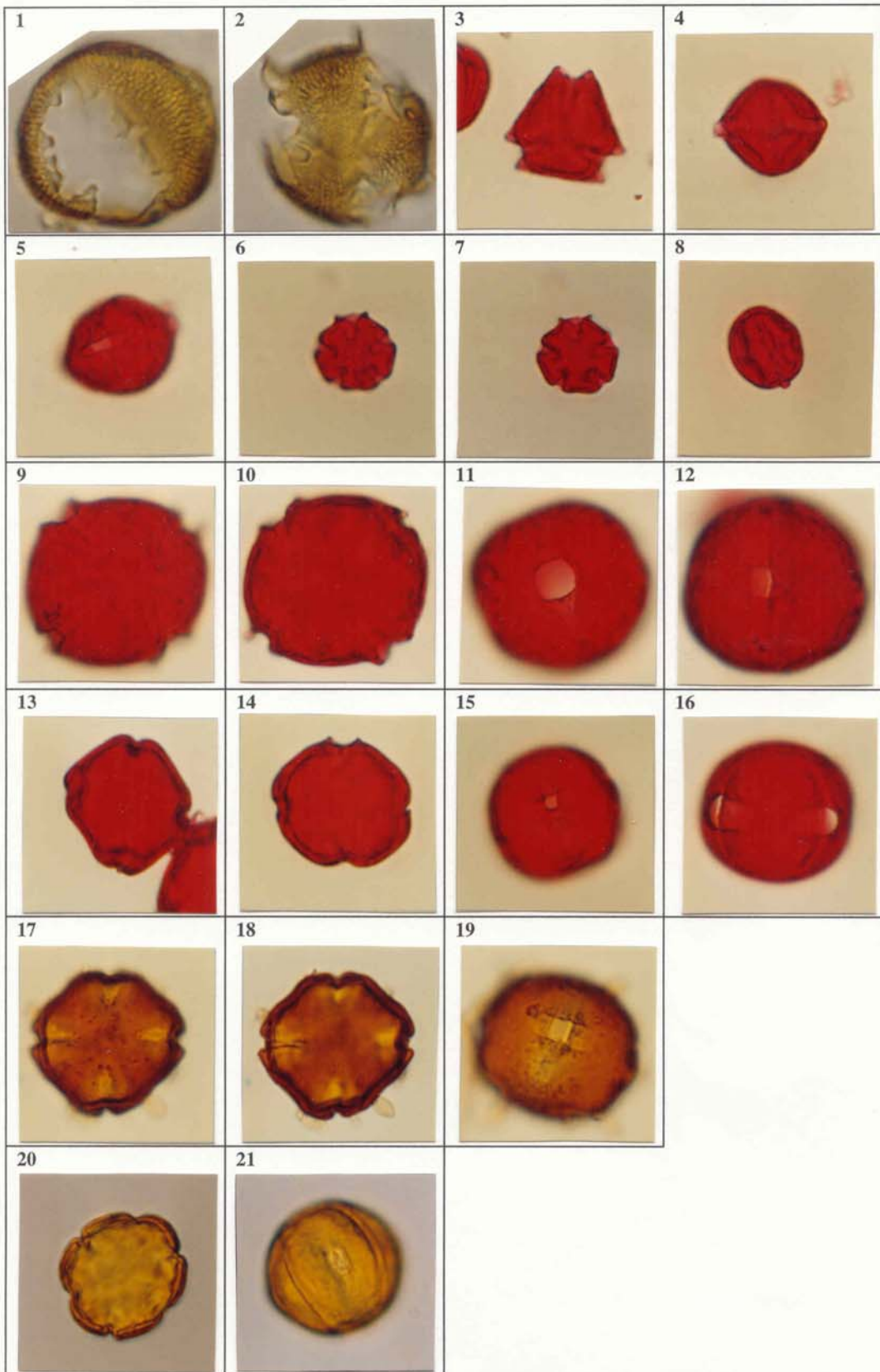
Monolete
Perine echinate $\sim 2 \mu\text{m}$ thick; spore 33 x 20 μm .
Exine psilate $\sim 1.5 \mu\text{m}$ thick; spore 30 x 18 μm .

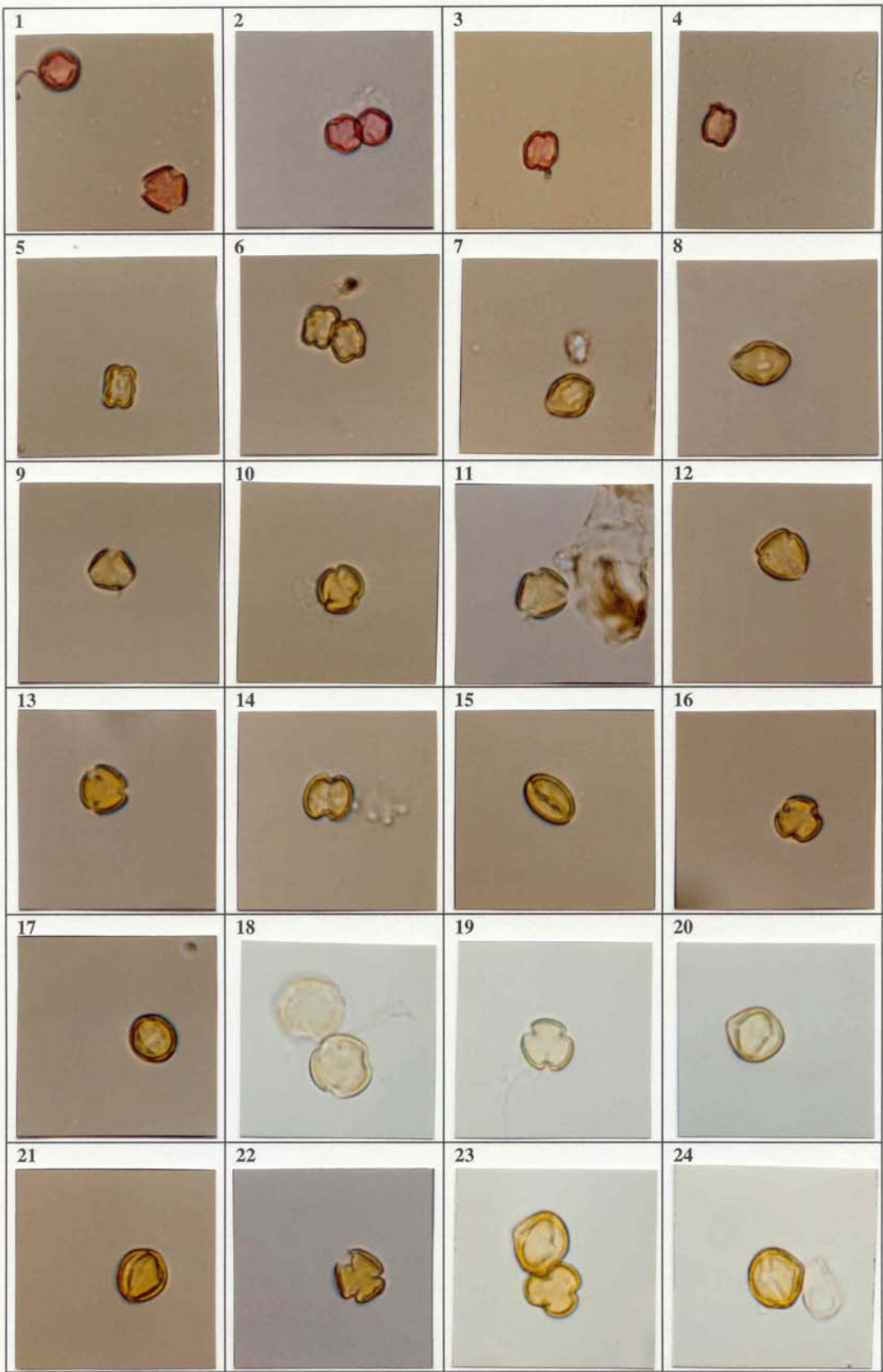
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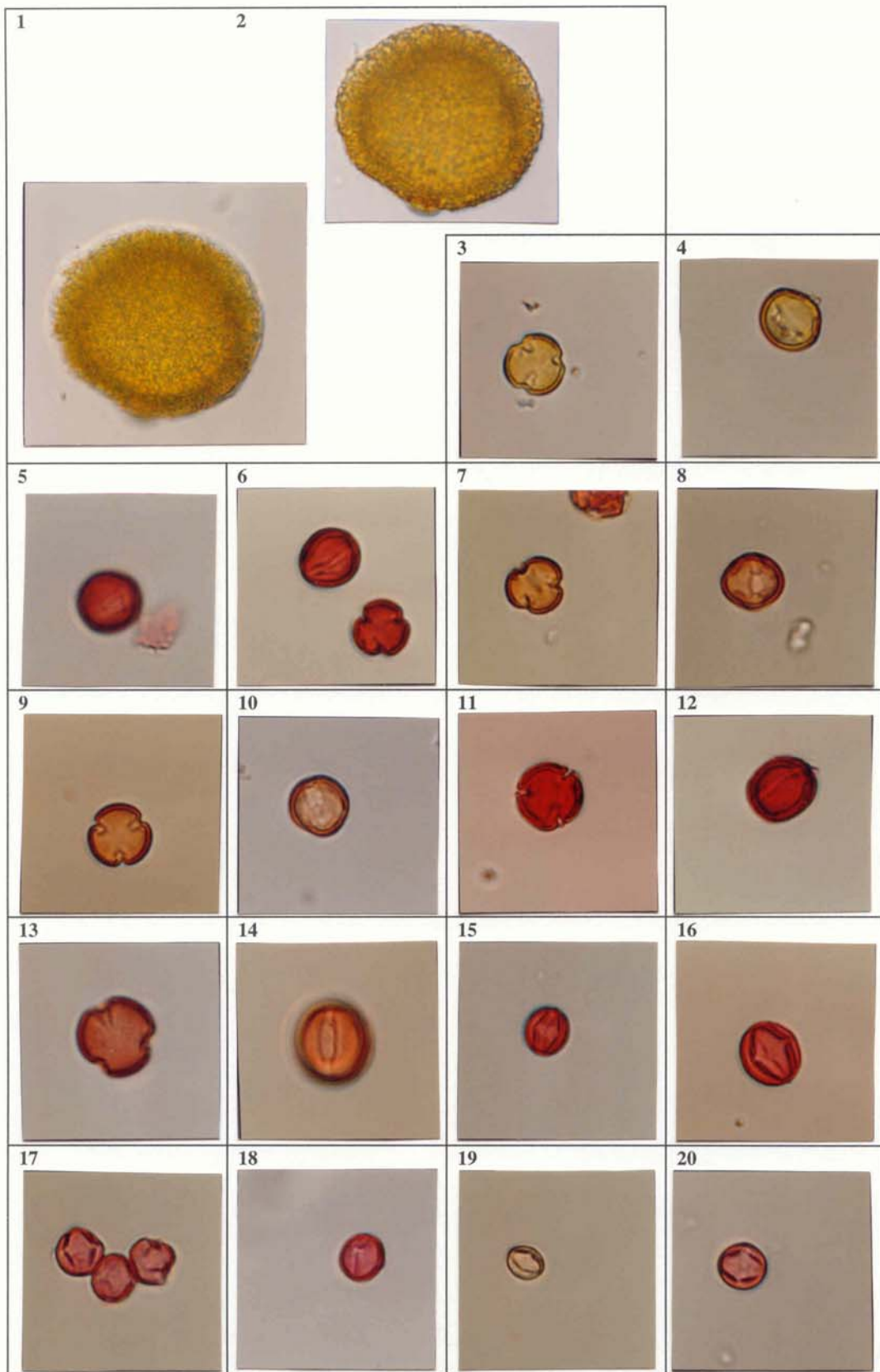


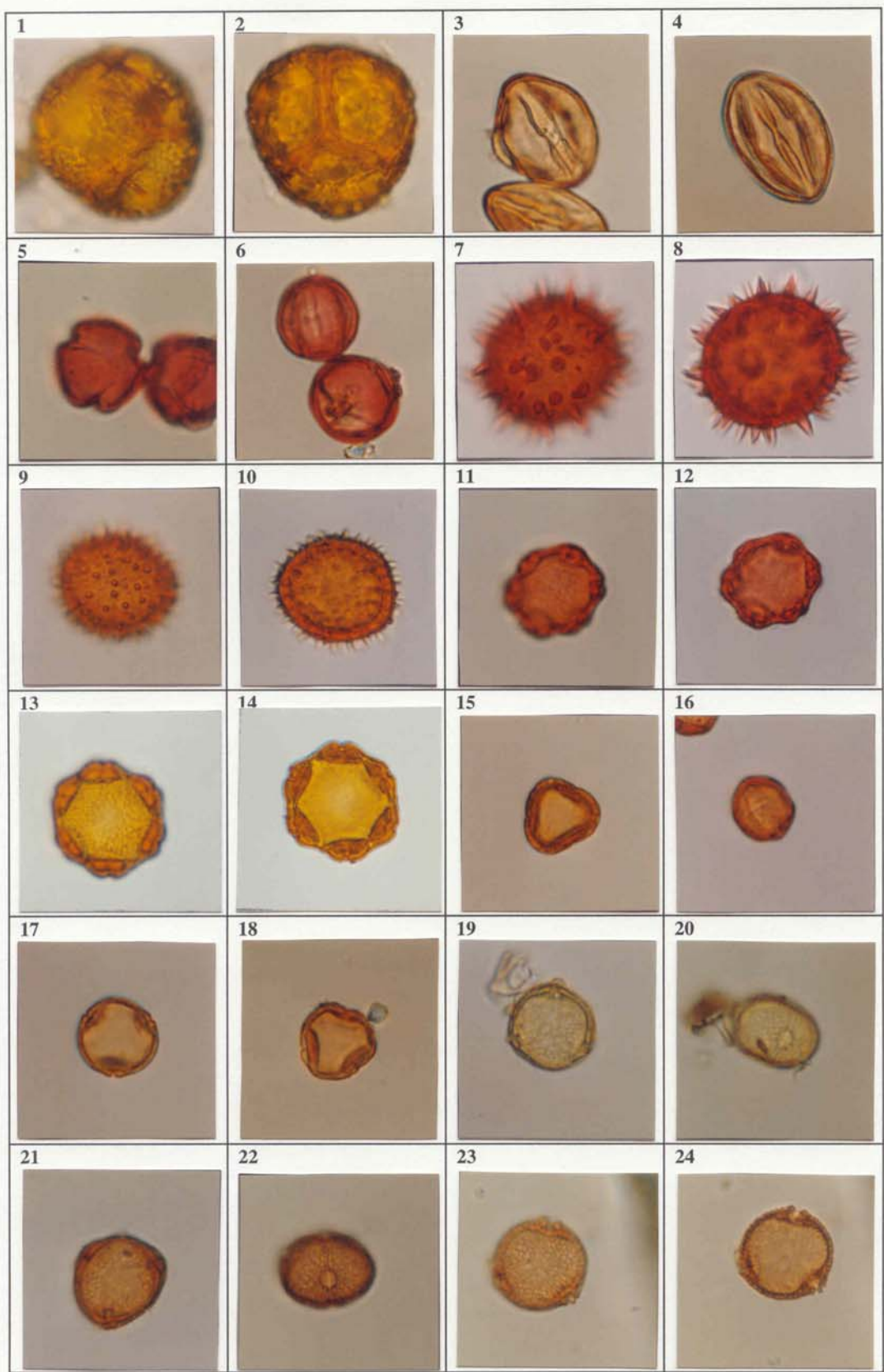


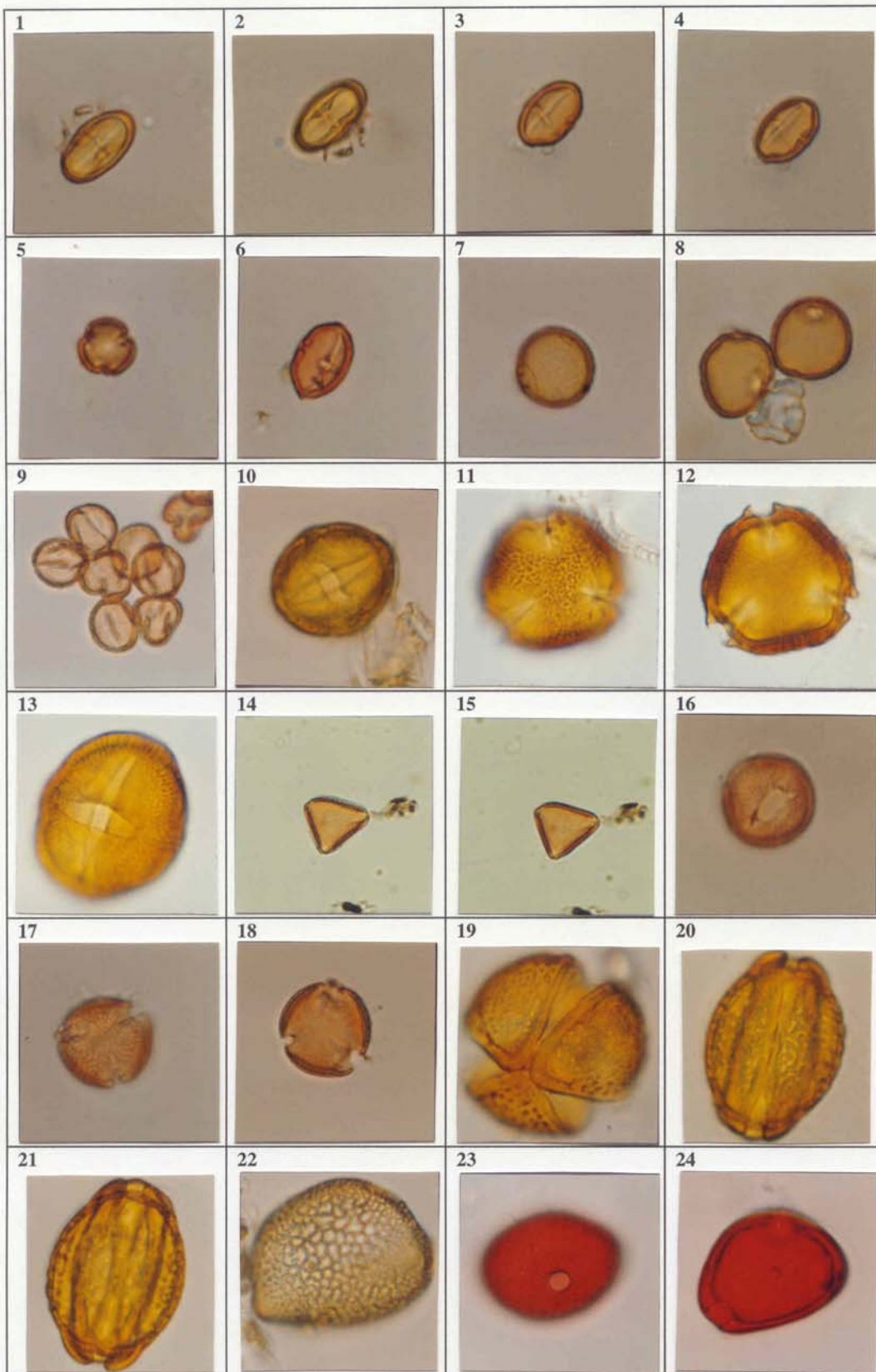


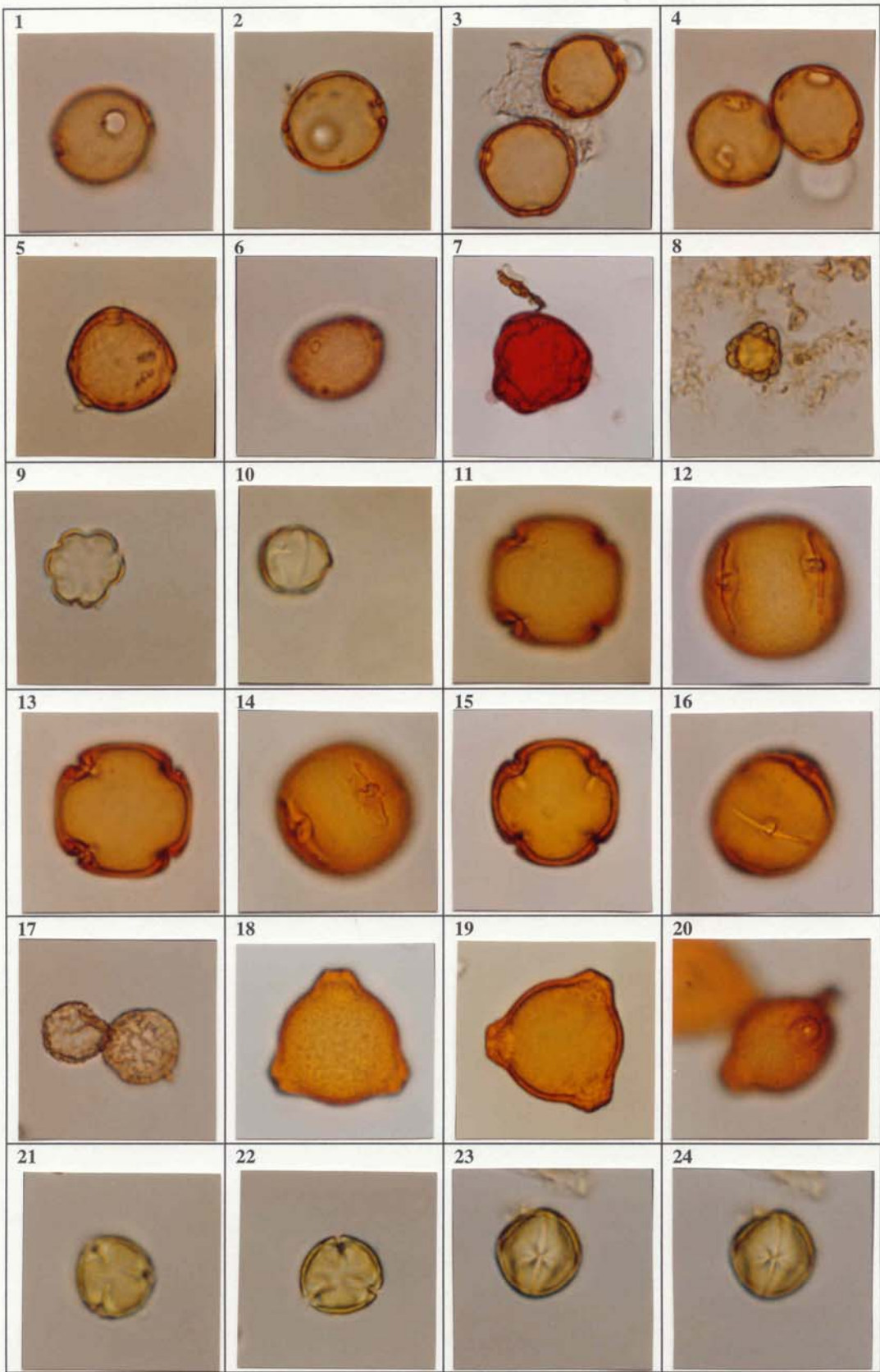


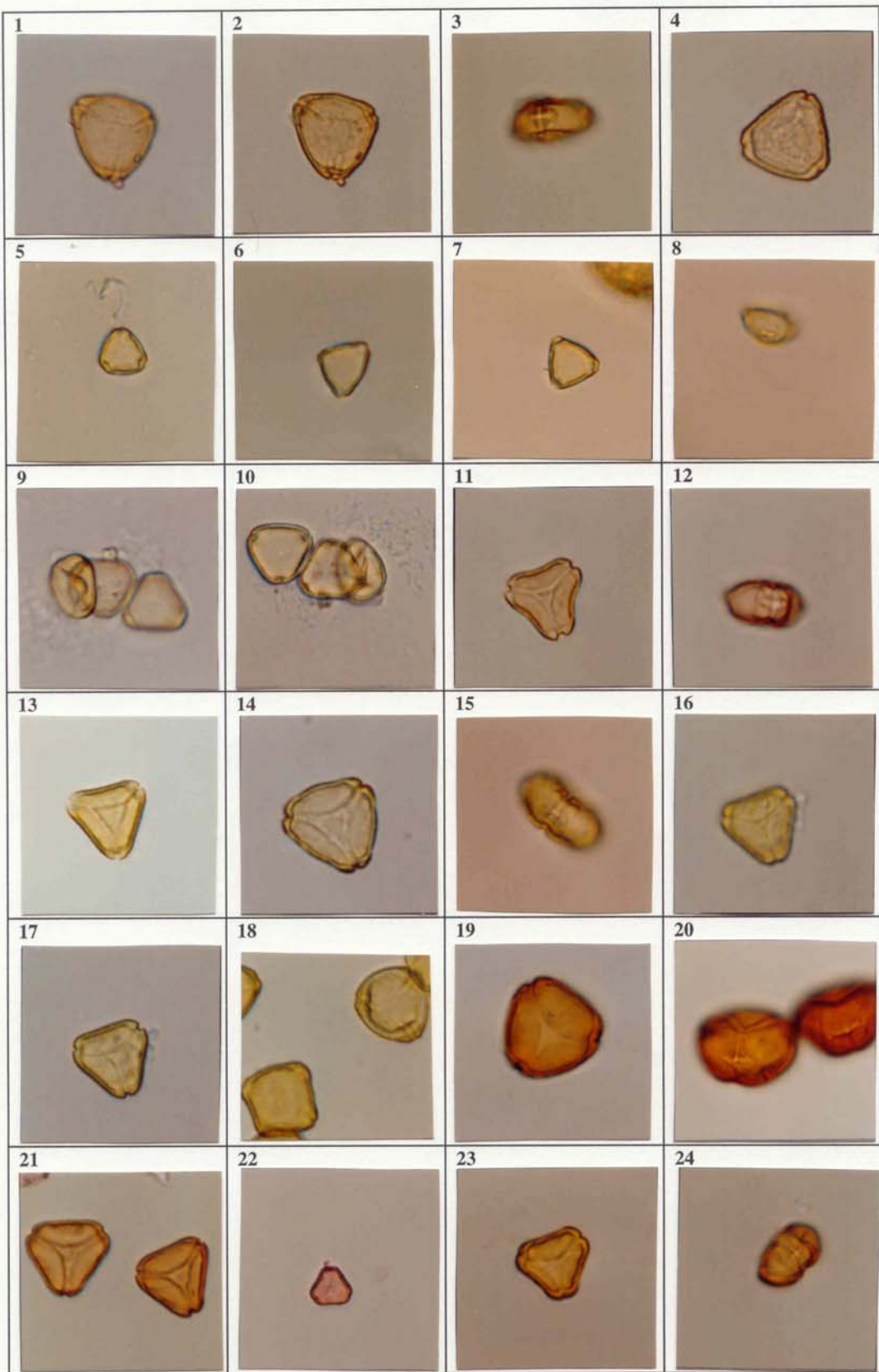


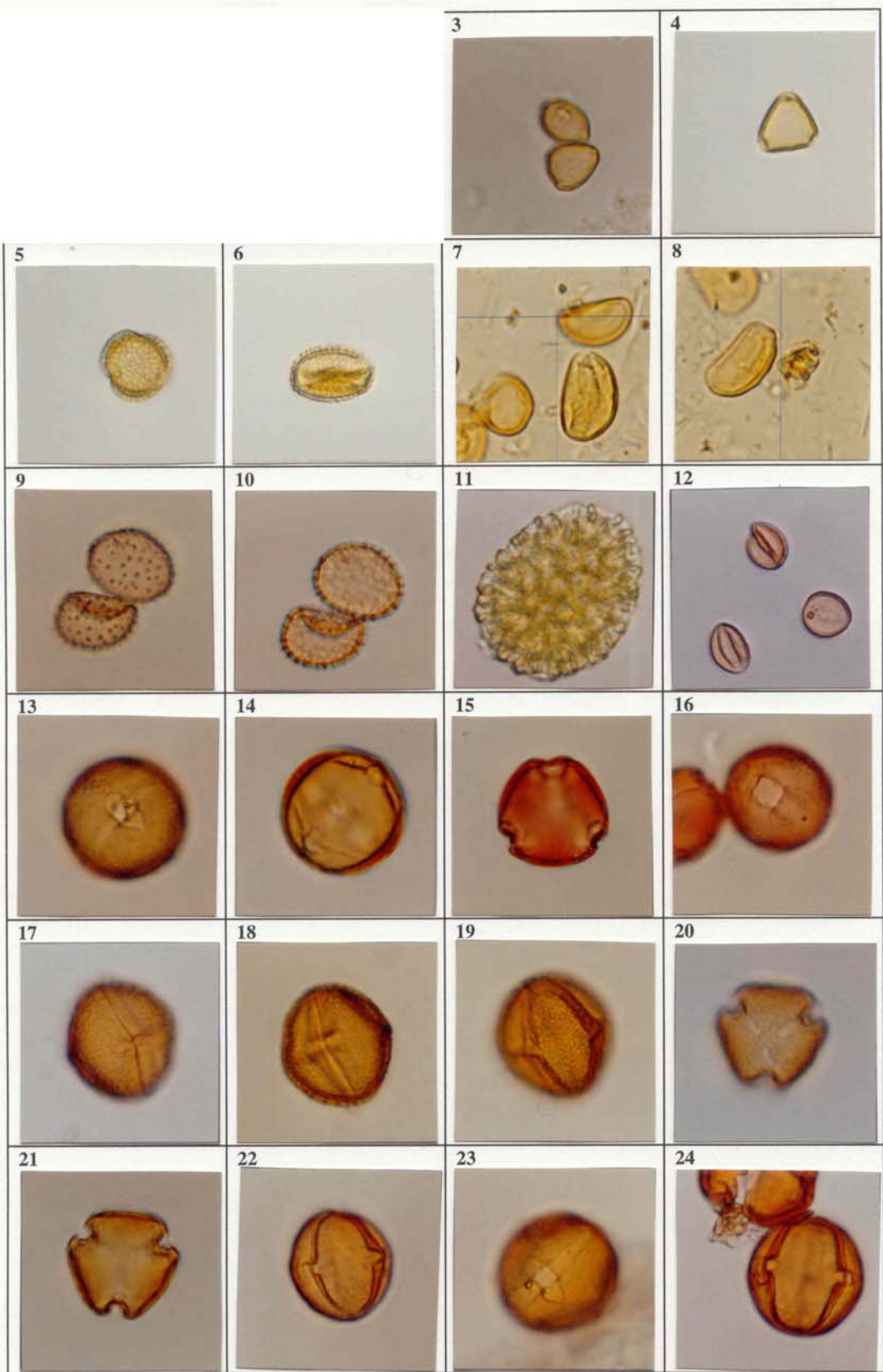


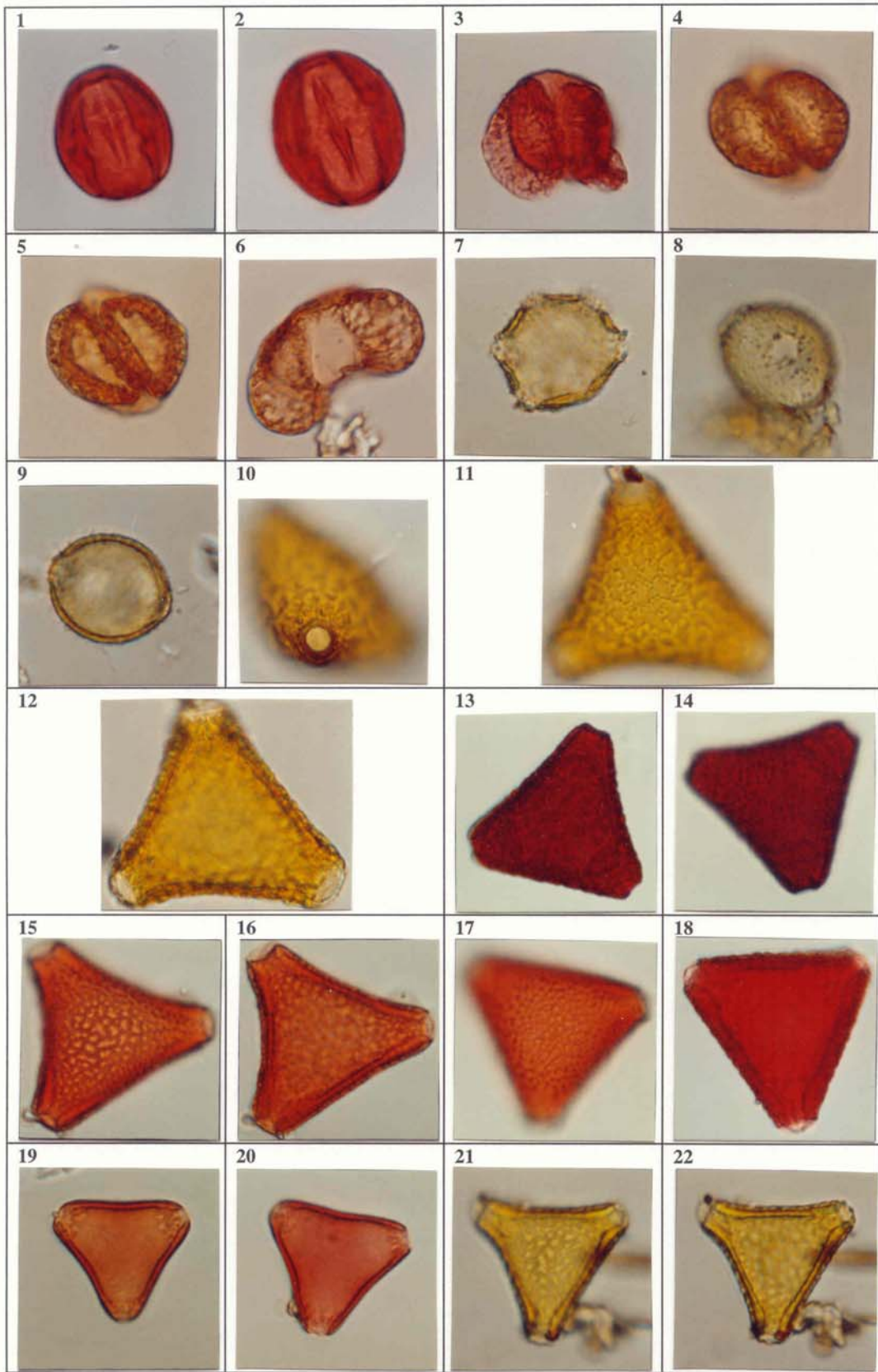


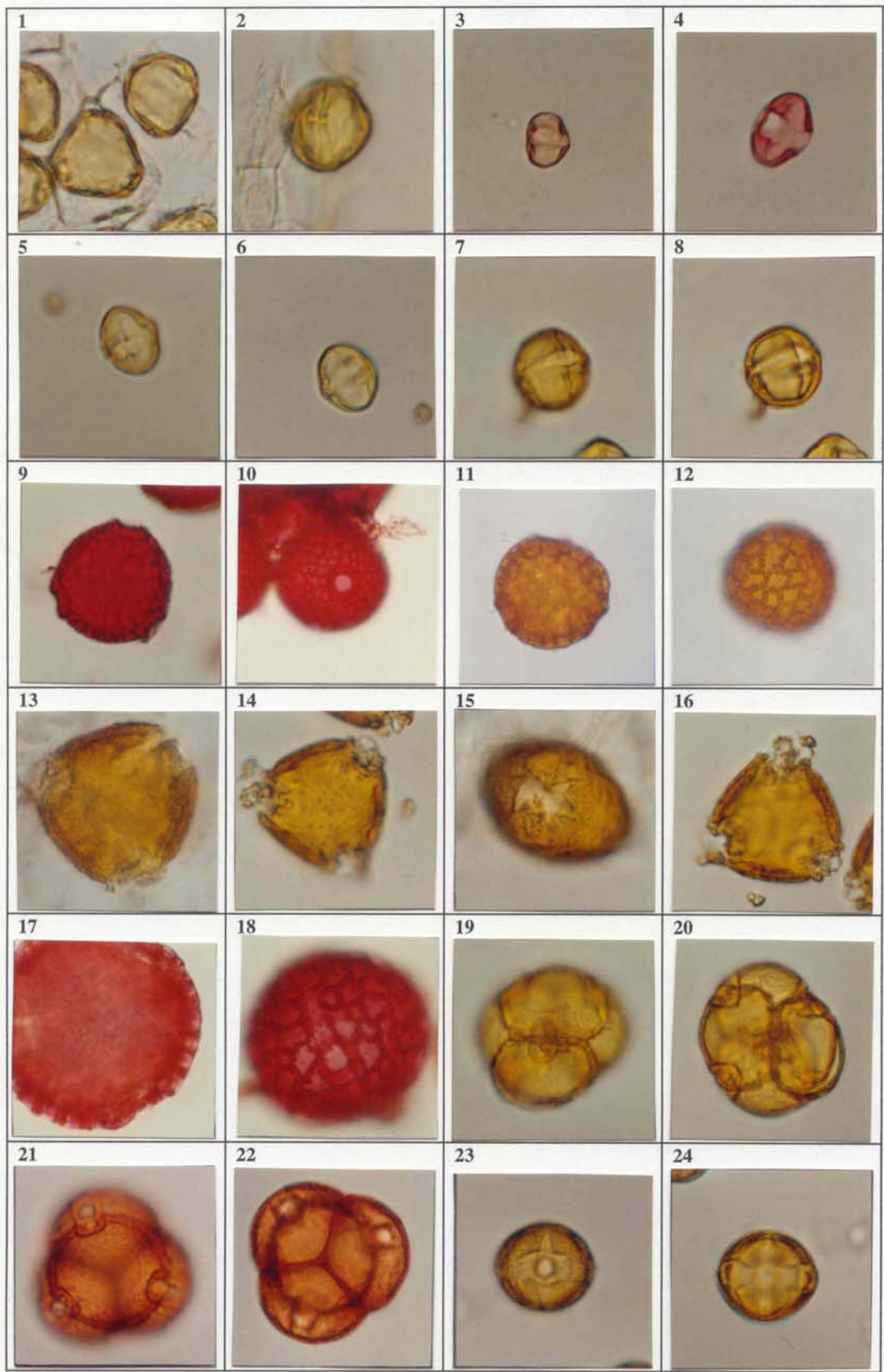




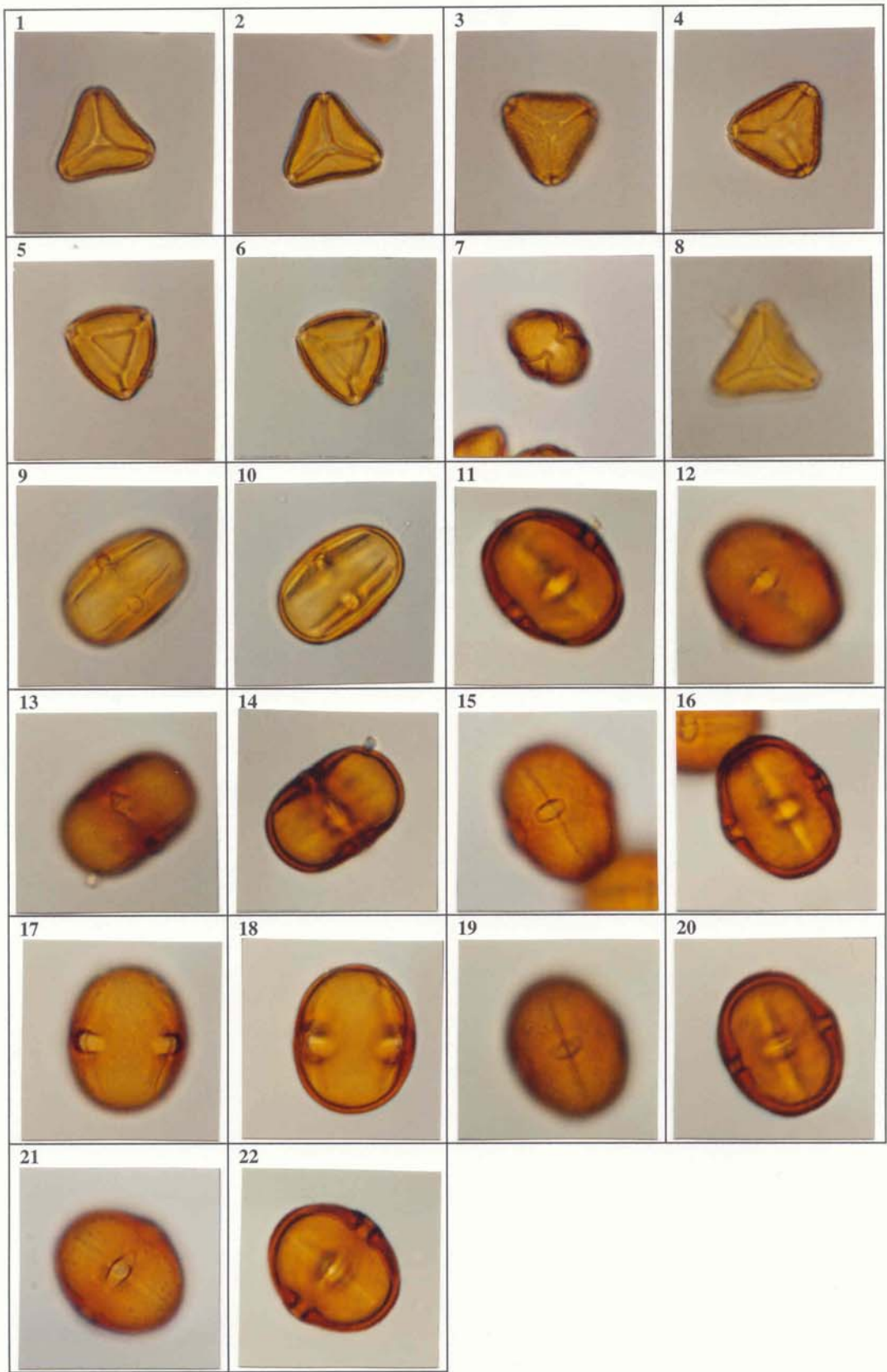


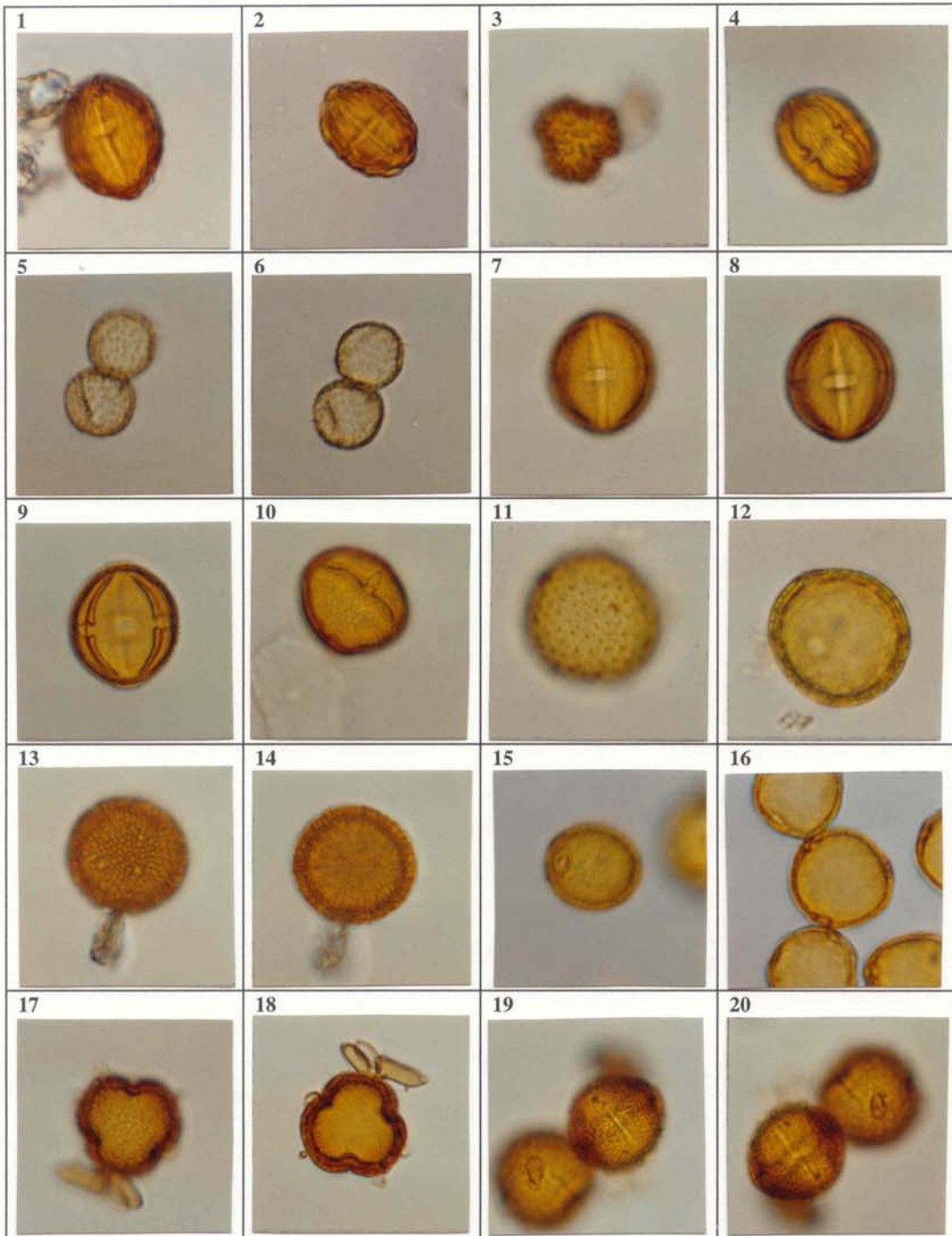




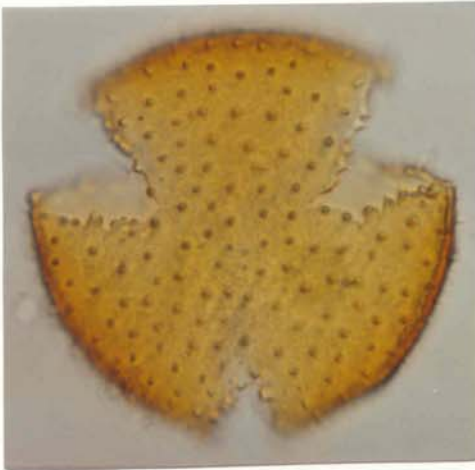




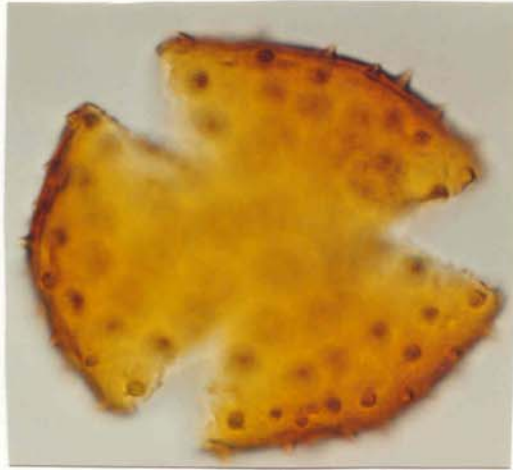




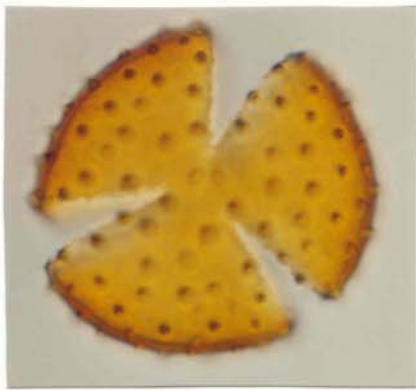
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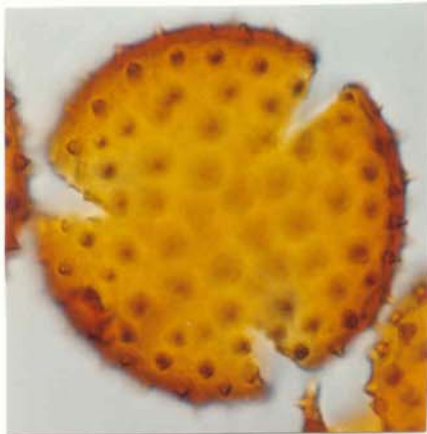
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6



