the seeds of most of these species are wind dispersed. If the salinity of the mined soil can be kept at a low concentration, perennial species will be able to survive and in some cases seed production may even be enhanced. Studies comparing the viability, longevity and germinability of seeds, produced by plants grown on soils with different salinities, are now essential. Future studies should also include emergence, seedling survival, plant growth, yield, etc. of plants derived from seeds produced at different soil salinities.

# Acknowledgements

The authors would like to express their appreciation to Miss Hester Steyn for her assistance during the experiment, Anglo American Corporation and the Foundation for Research Development for financial support, and the University of Pretoria for financial support and facilities.

#### References

- ABDUL-HALIM, R.K., SALIH, H.M., AHMED, A.A. & ABDUL-RAHEM, A.M. 1988. Growth and development of maxipak wheat as affected by soil salinity and moisture levels. *Plant and Soil* 112: 255–259.
- ASHRAF, M. & O'LEARY, J.W. 1996. Responses of some newly developed salt-tolerant genotypes of spring wheat to salt stress: 1. Yield components and ion distribution. *Journal of Agronomy and Crop Science* 176: 91–101.
- ASHRAF, M. & TUFAIL, M. 1995. Variation in salinity tolerance in sunflower (*Helianthus annuus* L.). *Journal of Agronomy and Crop Science* 174: 361–362.
- BANULS, J., LEGAZ, F. & PRIMO-MILLO, E. 1991. Salinity-calcium interactions on growth and ionic concentration of Citrus plants. *Plant* and Soil 133: 39–46.
- BOGEMANS, J., NEIRINCKX, L. & STASSART, J.M. 1989. Effect of deicing NaCl and CaCl<sub>2</sub> on spruce [*Picea abies* (L.) sp.]. *Plant and Soil* 120: 203–211.
- DE VILLIERS, A.J. 1993. Ecophysiological studies on several Namaqualand pioneer species, with special reference to the revegetation of saline mined soil. MSc.-dissertation, University of Pretoria, Pretoria.
- DE VILLIERS, A.J., VAN ROOYEN, M.W., THERON, G.K. & CLAASSENS, A.S. 1997. Tolerance of six Namaqualand pioneer species to saline soil conditions. *South African Journal of Plant and Soil* 14: 38–42.
- ENVIRONMENTAL EVALUATION UNIT 1990. Anglo American Corporation: West coast heavy mineral sands project Unpublished report. University of Cape Town, Cape Town.
- FRANCOIS, L.E., DONOVAN, T.J., LORENZ, K. & MAAS, E.V. 1989. Salinity effects on rye grain yield, quality, vegetative growth, and emergence. *Agronomy Journal* 81: 707–712.
- FRANCOIS, L.E., DONOVAN, T.J., MAAS, E.V. & RUBENTHALER, G.L. 1988. Effect of salinity on grain yield and quality, vegetative growth, and germination of triticale. *Agronomy Journal* 80: 642–647.
- FRANCOIS, L.E. & KLEIMAN, R. 1990. Salinity effects on vegetative growth, seed yield, and fatty acid composition of crambe. *Agronomy Journal* 82: 1110–1114.
- GUTIERREZ BOEM, F.H., LAVADO, R.S. & PORCELLI, C.A. 1997. Effects of waterlogging followed by a salinity peak on rapeseed (*Brassica napus L.*). Journal of Agronomy and Crop Science 178: 135-140.
- HEWITT, E.J. 1952. Sand and wafer culture methods used in the study of plant nutrition. Farnham Royal, Bucks, Commonwealth Agricultural Bureau.
- HYDER, S.Z. & GREENWAY, H. 1965. Effects of Ca<sup>2+</sup> on plant sensitivity to high NaCl concentrations. *Plant and Soil* 23: 258–260.
- JONES, R.W. Jr., PIKE, L.M. & YOURMAN, L.F. 1989. Salinity influences cucumber growth and yield. *Journal of the American Society for Horticultural Science* 114: 547–551.

- KEMP, P.R. & CUNNINGHAM, G.L. 1981. Light, temperature and salinity effects on growth, leaf anatomy and photosynthesis of *Distichlis spicata* (L.) Greene. *American Journal of Botany* 68: 507–616.
- KINGSBURY, R.W. & EPSTEIN, E. 1986. Salt sensitivity in wheat. *Plant Physiology* 80: 651–654.
- LARCHER, W. 1995. Physiological plant ecology: ecophysiology and stress physiology of functional groups. Springer-Verlag, Berlin.
- LEIDI, E.O., NOGALES, R. & LIPS, S.H. 1991. Effect of salinity on cotton plants grown under nitrate or ammonium nutrition at different calcium levels. *Field Crops Research* 26: 35–44.
- LEWIS, O.A.M., LEIDI, E.O. & LIPS, S.H. 1989. Effect of nitrogen source on growth response to salinity stress in make and wheat. *New Phytologist* 111: 155–160.
- MAMO, T., RICHTER, C. & HEILIGTAG, B. 1996. Salinity effects on the growth and ion contents of some chickpea (*Cicer arietinum* L.) and lentil (*Lens culinaris* Medic.) varieties. *Journal of Agronomy and Crop Science* 176: 235–247.
- MUNNS, R. & TERMAAT, A. 1986. Whole-plant responses to salinity. *Australian Journal of Plant Physiology*13: 143–160.
- SALIM, M. 1989. Effects of salinity and relative humidity on growth and ionic relations of plants. *New Phytologist* 113: 13–20.
- TIKU, B.L. & SNAYDON, R.W. 1971. Salinity tolerance in the grass species Agrostis stolonifera L., Plant and Soil 35: 421–431.
- VENABLES, A.V. & WILKINS, D.A. 1978. Salt tolerance in pasture grasses. New Phytologist 80: 613–622.
- WATT, T.A. 1983. The effects of salt water and soil type upon the germination, establishment and vegetative growth of *Holcus lanatus* L. and *Lolium perenne* L. *New Phytologist* 94: 275–291.

# Technical communication

# Progress with the trial phase for registration of new plant names

# G.F. Smith1 and G. Germishuizen\*

<sup>1</sup>Research and Scientific Services Directorate, National Botanical Institute, Private Bag X101, Pretoria, 0001 Republic of South Africa

Scientific Publications and Research Support Services, National Botanical Institute, Private Bag X101, Pretoria, 0001 Republic of South Africa

#### Received 1 October 1998; revised 11 November 1998

In a spirit of co-operation and to publicise this proposed innovation in plant nomenclature widely in southern Africa, this note has been submitted simultaneously to the following botanical journals: *Bothalia, South African Journal of Botany, Forum Botanicum* and *SAB-ONET News*. A trial phase for the registration of new plant names in South Africa, co-ordinated by the International Association of Plant Taxonomy in Berlin, is introduced. Registration can be effected by publishing a new name in an accredited journal or series or by submitting it to the national Registration Office established for this purpose.

Keywords: new plant names, registration, South Africa.

\*To whom correspondence should be addressed.

#### Introduction

A number of far-reaching proposals aimed at the refinement and simplification of the *International Code of Botanical Nomenclature* were discussed in some detail at the Nomenclature Section of the XVth International Botanical Congress (IBC) held in August 1993 in Yokohama, Japan. Three of the main issues were the adoption of lists of *Names in current use* (Smith *et al.* 1993; Smith & Hawksworth 1994), the extended options of conserving and rejecting names (Greuter & Nicolson 1993), and the registration of all new plant names (Borgen *et al.* 1997; Greuter & Von Raab-Straube 1998). This paper deals with the last-named issue, namely the proposed system by means of which new names of plants and fungi would have to be dealt with from 1 January 2000 onwards.

Article 32.1 of the International Code of Botanical Nomenclature adopted at the 1993 IBC (Greuter et al. 1994) concludes with 'In addition, subject to the approval of the XVI International Botanical Congress, names (autonyms excepted) published on or after 1 January 2000 must be registered.' Furthermore, Article 32.2 states that 'Registration is effected by sending the printed matter that includes the protologue(s) with the name(s) to be registered clearly identified, to any registering office designated by the International Association for Plant Taxonomy.'

To demonstrate the feasibility of a registration system, the International Association of Plant Taxonomy (IAPT) undertakes a non-mandatory trial of registration for a two-year period, starting 1 January 1998 (Borgen *et al.* 1997). Details of the proposed implementation of the registration requirement (Borgen *et al.* 1998) will be considered by the St Louis Congress in July 1999. Since May 1998, a searchable demonstration database containing all names trial-registered after January 1998 can be freely consulted on the Internet (http://www.bgbm.fu-berlin.de/registration/QueryForm.htm).

### **Registration Centres**

As part of the registration procedure of new plant names it is important to establish a national Registration Office (RO) in as many countries as possible. This would enable editors and authors to register new plant names and combinations in their own or a neighbouring country. It is possible that the registration of all new plant names would become mandatory in future, with effect from (but not before) I January 2000.

The National Botanical Institute (NBI) was recently approached by the IAPT to serve as RO for South Africa. The institute was contacted in view of its permanence, national role, reliable communication system (telephone, fax, e-mail, postal services) and permanent filing and library facilities. The NBI provisionally accepted this invitation on behalf of all South African botanists. In the case of new names and combinations for fungi, the authors have liaised with Alice Baxter of the National Fungal Collection, and after consultation with her staff she has agreed that the NBI act as RO for those names as well.

#### Accredited Journals/Series

An enumeration of 119 journals or series accredited with the IAPT appeared in *Taxon* 47: 498, 499 (1998). This list is being regularly updated as new journals are added and is available on the Web (http://www.bgbm.fu-berlin.de/iapt/registration/journals.htm). It will be published annually in the journal *Taxon*.

After consultation with some of the editors, it is proposed that the following journals should receive preference when botanists working on the local flora establish new names for plant taxa:

1. Aloe (journal of the Succulent Society of South Africa).

2. *Bothalia* (biannual house journal of the National Botanical Institute).

3. Contributions from the Bolus herbarium (occasional publication of the Bolus Herbarium, University of Cape Town).

4. Flora of southern Africa (occasional publication of the National Botanical Institute).

5. Flowering plants of Africa (biennial publication of the

# National Botanical Institute).

Palaeoflora of southern Africa (occasional publication published in the Strelitzia series of the National Botanical Institute).
South African Journal of Botany (two-monthly journal jointly published by the National Botanical Institute and the South Afri-

can Association of Botanists).8. *Strelitzia* (occasional publication of the National Botanical Institute).

Editors of other South African journals who would like their publication to be added to this list should contact G.F. Smith as a matter of priority.

It should, furthermore, be noted that proposals to restrict publication of names for plant novelties in non-scientific publications will be voted on before or during the 1999 Nomenclature Section of the Missouri IBC (Laferrière 1998).

#### **Registration procedures**

#### Steps to be taken by authors

Authors must ensure that names of all new taxa and new combinations are registered and they can do it in one of the following ways:

1. By sending their manuscripts to an accredited journal (the issue of accreditation is discussed below). The editor of that journal will then see that registration takes place.

2. By submitting a request with the relevant printed matter (in duplicate) and specifying which names are to be registered to a recording centre (the nearest RO). This applies only to names not published in an accredited journal or serial, for example, in a book, monograph or thesis. Use of the apposite forms for registration requests is strongly recommended (although not mandatory). Registration forms are available from all Registration Offices. Steps are as follows:

• Registration forms will be mailed upon request. Authors who wish to use the RO in South Africa run by the NBI should send their requests to the address of the senior author of this paper.

• Upon receipt at the RO, each completed registration form (to be submitted in triplicate) and the accompanying two copies or reprints of the relevant article will be date-stamped. By this act, the submitted names will, technically speaking, become registered and dated (irrespective of their subsequent processing).

• Each form will be provided with the acronym of the institution running the RO (PRE for the National Herbarium, Pretoria, in the case of South Africa), and an appropriate NBI filing system number will be allocated. At NBI in Pretoria, the filing system will be maintained in the Mary Gunn Library under supervision of the Director: Research.

• A copy of the form will be returned to the submitting author.

• The RO's archival copy of the registration form will be faxed to the office of the IAPT without delay.

• The original form along with one copy or reprint of the article will be sent by registered mail to the IAPT office without delay. The second copy will remain in the RO archive permanently, initially as an insurance against the risk of postal loss.

## Steps to be taken by editors of accredited journals

• For a journal to be accredited, its publishers must commit themselves by signing an agreement with the IAPT.

To make the accredited status of these journals known to authors and readers, it is suggested by the IAPT that the following wording be used, appropriately placed on the cover and/or in the imprint: 'Accredited with the International Association for Plant Taxonomy for the purpose of registration of new names of vascular plants (excluding fossils)' or 'Accredited with the International Association for Plant Taxonomy for the purpose of registration of new non-fungal plant names' or 'Accredited with the International Association for Plant Taxonomy for the purpose of registration of all new plant names'. The last statement would also provide for new fungal and fossil names.

O The new names and new combinations to be registered should be identified primarily by being listed in a separate index in each issue or by being explicitly enumerated in the summary/ abstract or otherwise specified by the editor of the journal.

O Each individual issue featuring names of new taxa or new combinations must be submitted to a pre-defined registration office or centre, as soon as published and by the most rapid way. This will be PRE for South Africa, and may be PRE for neighbouring countries not having their own RO.

#### Acknowledgements

The authors would like to thank Mrs Emsie du Plessis and Dr Otto Leistner, colleagues at the NBI, for their assistance in compiling this article.

### References

- BORGEN, L., GREUTER, W., HAWKSWORTH, D.L., NICOLSON, D.H. & ZIMMER, B. 1997. Announcing a test and trial phase for the registration of new plant names (1998–1999). *Taxon* 46: 811–814.
- BORGEN, L., GREUTER, W., HAWKSWORTH, D.L., NICOLSON, D.H. & ZIMMER, B. 1998. Proposals to implement mandatory registration of new names. *Taxon* 47: 899–904.
- GREUTER, W., BARRIE, F.R., BURDET, H.M., CHALONER, W.G., DEMOULIN, V., HAWKSWORTH, D.L., JØRGENSEN, P.M., NICOLSON, D.H., SILVA, P.C. & TREHANE, P. 1994. *International Code of Botanical Nomenclature* (Tokyo Code). Koeltz, Koenigstein.
- GREUTER, W. & NICOLSON, D.H. 1993. On the threshold to a new nomenclature? *Taxon* 42: 925–927.
- GREUTER, W. & VON RAAB-STRAUBE, E. 1998. Registration progress report, 1. *Taxon* 47: 497–502.
- LAFERRIÈRE, J.E. 1998. (16–17) Two proposals to restrict publication in non-scientific publications. *Taxon* 47: 181.
- SMITH, G.F. & HAWKSWORTH, D.L. 1994. Stability of scientific plant names—an attainable goal? *South African Journal of Science* 90: 59, 60.
- SMITH, G.F., ROURKE, J.P. & OLIVER, E.G.H. 1993. Stability in botanical nomenclature. South African Journal of Science 89: 313.