

Flora of the Darwin Region

VOLUME 1

P.S. Short & I.D. Cowie (eds)



PIPERACEAE

C.P. Mangion

**greening the
Territory**

A Territory Government initiative

National Library of Australia
Cataloguing-in-publication entry (PDF):
Flora of the Darwin Region Volume 1
ISBN: 9781921519949 (PDF)
Series: Northern Territory Botanical Bulletin No. 37
Notes: Includes bibliographical references and
index.
Subjects: Botany – Northern Territory – Darwin
region – Plants – Identification
Other Authors/Contributors: Short, P.S.,
Cowie, I.D., Northern Territory Department
of Natural Resources, Environment, the Arts
and Sport.
Dewey Number: 581.994295
ISSN: 0314-1810
Date of Publication: March 2011

Cover: *Helicteres procumbens* (Benth.) Cowie, *ined.*
Cover Artist: R. Walter
Editors: P.S. Short and I.D. Cowie
Illustrations: M. Osterkamp
Typesetting: D. Bisa and M. Voukalis
Photographic Editor: B.M. Stuckey
Authors contributing to this publication:
D.E. Albrecht
Northern Territory Herbarium, Department of
Natural Resources, Environment, the Arts and
Sport, P.O. Box 1120, Alice Springs, N.T. 0871,
Australia
R.M. Barker
State Herbarium of South Australia, Plant
Biodiversity Centre, P.O. Box 2732, Kent Town,
S.A. 5071, Australia
I.D. Cowie; B. Crase*; D.J. Dixon*; C.R. Dunlop*;
R.K. Harwood*; R.A. Kerrigan*; G.J. Leach*;
C. Mangion*; P.S. Short; G.M. Wightman*
Northern Territory Herbarium, Department of
Natural Resources, Environment the Arts and

Sport, P.O. Box 496, Palmerston, N.T. 0831,
Australia
L.A. Craven
Australian National Herbarium, Centre for
Plant, Biodiversity Research, G.P.O. Box 1600,
Canberra, A.C.T. 2601, Australia
L.L. Forman† (deceased)
Royal Botanic Gardens, Kew, Richmond,
Surrey, TW9 3AB, UK
B. Jackes
James Cook University Herbarium, School of
Marine and Tropical Biology, James Cook
University, Townsville, Qld 4811, Australia
L. Jessup
Queensland Herbarium Mt Coot-tha Road,
Toowong, Qld 4066, Australia
J. Palmer
Australian National Herbarium, G.P.O. Box
1600, Canberra, A.C.T. 2601, Australia

*Former employee NT Herbarium

This book is copyright. Apart from any fair dealing
for the purpose of private study, research, criticism
or review, as permitted under the Copyright Act, no
part of this publication may be produced by any
process whatsoever without the written permission
of the publisher.

© Northern Territory Government

Publisher:

Northern Territory Herbarium
Department of Natural Resources,
Environment, the Arts and Sport
P.O. Box 496
Palmerston, N.T. 0831, Australia

Suggested citation for this article:

Mangion, C.P. (2011). Piperaceae. *In* Short, P.S.
& Cowie, I.D. (eds), *Flora of the Darwin Region*.
(Northern Territory Herbarium, Department of
Natural Resources, Environment, the Arts and
Sport). Vol. 1, pp. 1–3.
http://www.nt.gov.au/nreta/wildlife/plants_herbarium/index.html

PIPERACEAE

C.P. Mangion

Shrubs, epiphytes, vines, or annual or perennial herbs perennating by rhizomes, often dioecious or monoecious; stem nodes often conspicuously swollen (*e.g. Piper*); glabrous or with simple or multicellular hairs. *Leaves* alternate, occasionally opposite or in whorls of 3 or 4, petiolate, simple, often pellucid punctate and aromatic; stipules adnate to the petiole or absent. *Flowers* bisexual or unisexual, small and lacking a perianth but each subtended by a bract and all held in dense, terminal, axillary or leaf-opposed spikes. *Stamens* 1–10, about equal in length, the filaments free or sometimes fused into an open or closed tube, staminodes rarely present; anthers bisporangiate and monotheical (*Peperomia*) or tetrasporangiate and dithecal (*Piper*), opening by 1 or 2 longitudinal slits. *Gynoecium* of 1, 3 or 4 carpels forming a superior, 1-locular ovary with 1–4 (5) stigmas; ovule solitary, basal or nearly so. *Fruit* dry or fleshy, indehiscent. *Seed* with a small embryo and copious starchy perisperm.

Widespread in the tropics of both the Old and New worlds, the family contains perhaps ten genera and about 3,000 species. Australia has two genera, *Peperomia* and *Piper*.

Taxonomic references: Cronquist (1981); Bentham (1873); Tebbs (1993); Verdcourt (1996); Thiele & Adams (1999); Nee (2004); Spokes & Forster (2007).

- | | | |
|----|---|------------------|
| 1 | Small, thinly fleshy, short-lived herbs; spikes axillary or terminal;
flowers bisexual | Peperomia |
| 1: | Climber or runner rooting at nodes; spikes opposite leaves;
flowers unisexual | Piper |

PEPEROMIA Ruiz & Pav.

Perennial *herbs*, often short lived. *Leaves* alternate, (opposite or whorled outside D.R.), succulent to membranous, petiolate; stipules absent. *Inflorescence* a solitary, terminal or axillary spike. *Flowers* bisexual, subtended by rounded to orbicular peltate bracts. *Stamens* 2; filaments subulate, anthers bisporangiate and monotheical, each opening by 1 longitudinal slit; pollen grains without an aperture. *Ovary* sessile or contracted at base and substipitate; obtuse or rostrate at apex; with an entire capitate stigma. *Fruit* a drupe, ovoid, obovoid or turbinate, exserted, not fleshy, often mucilaginous, sessile or almost so.

A genus of *c.* 1,000 species worldwide, with most from central and south America. Six native and one naturalised species in Australia, with only naturalised *P. pellucida* in the N.T.

Taxonomic reference: Forster (2007).

**P. pellucida* (L.) Kunth

Piper pellucidum L.

Thinly fleshy glabrous *herb* to 30 cm high. *Stems* erect, becoming decumbent, internodes up to 50 mm long and 2 mm diam. *Leaves* alternate, petiolate; petiole up to 20 mm long and *c.* 1 mm diam.; lamina ovate-elliptic, up to 35 mm long and 3 cm wide, base rounded to cordate, tip acute. *Inflorescence* of solitary spikes, terminal or axillary, up to 70 mm long; peduncle 5–13 mm long, *c.* 0.5 mm diam. *Flowers* to 1 mm apart, floral bracts rounded, to 0.4 mm long and wide. *Anthers* oblong, shorter than the bracts. *Ovary* rounded-oblong, *c.* 3 mm long and wide. *Fruit* a drupe, sticky.

Fig. 1 (*McKee 8264*).

Native to the Americas but naturalised or an occasional garden or nursery escape in the Old World tropics, including New Guinea and Australia (W.A., N.T., Qld). Occasional in the D.R., being mostly a weed of gardens. It is unlikely to become a serious weed.

Whole plants without roots are used as a salad vegetable; they have a slight peppery flavour.

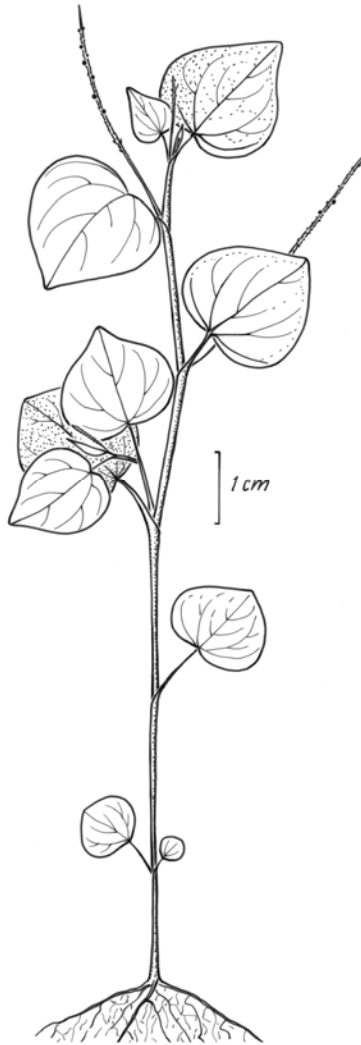
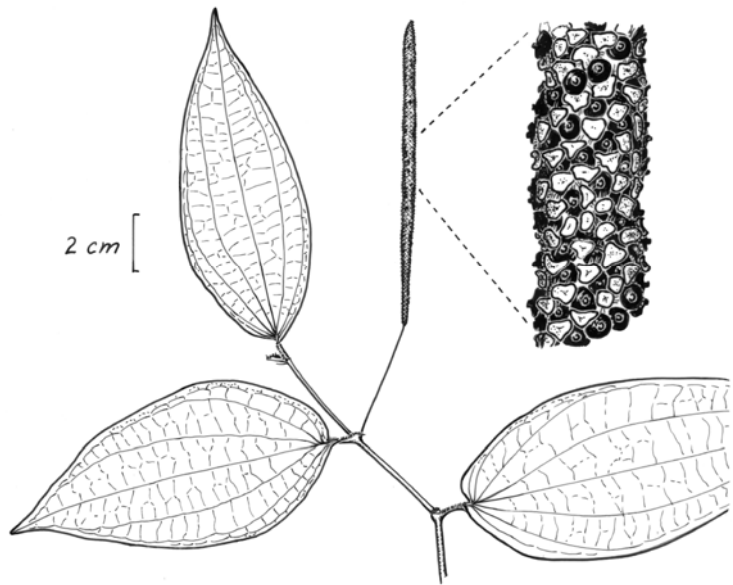
Peperomia pellucida

Fig. 1

Piper macropiper**PIPER L.**

Shrubs, trees or woody climbers, rarely tall herbs, branches usually with articulations at the nodes; climbing by adhesive roots. *Leaves* alternate, very variable in shape but with entire margins often aromatic. *Inflorescence* a spike usually leaf-opposed and solitary, rarely clustered, or solitary on short axillary peduncles. *Flowers* unisexual or hermaphrodite, the subtending bract peltate or adnate. *Stamens* in the Australian species 2 or 8, anthers of 2 distinct opposed cells, each opening in 2 valves. *Stigmas* 3 (in native species). *Fruit* a berry, sessile or pedicellate.

A pantropical genus of *c.* 2,000 species, with seven species (two endemic) in Australia and one in the N.T.

Includes commercially important species such as Betel Leaf (*P. betle*), Kava (*P. methysticum*) and Black Pepper and White Pepper (both *P. nigrum*).

Taxonomic reference: Spokes (2007).

P. macropiper Pennant

P. novaehollandiae auct. non Miq.

Climber or stoloniferous herb, glabrous to densely pubescent, stem nodes often thickened. *Petioles* up to 7 cm long. *Lamina* very narrowly to very broadly ovate, 4–20 cm long, 2.5–13.5 cm wide,

base rounded to cordate and sometimes asymmetric and forming a minute auricle on one side, apex acuminate, glabrous to densely pubescent, lateral veins prominent and 2 or 3 pairs arising from the base; stipules to 2 cm long, caducous. *Spikes* to 15 cm long, (to 20 cm long outside D.R.), their

stalks to c. 3 cm. long. *Male flowers* 2- or 3-staminate; stamens very short; anthers reniform, often appearing truncate. *Female flowers* sessile, free, crowded; stigmas 3-fid, sessile. *Fruits* sessile, ovoid to oblong, crowded but distinct.

Fig. 1 (*Fensham 1072*); Pl. 1 (unvouchered).

Widely distributed from India and Sri Lanka to Malaysia, New Guinea, Melanesia and Australia

(N.T., Qld). Widespread in the N.T where it occurs in rainforest with permanent water. Localities include Banalminan River near Gapuwiyak in eastern Arnhem Land, Holmes Jungle, Darwin, and Kushill Creek near Wadeye.

A polymorphic species exhibiting great variation in leaf shape and vestiture, even on the one plant.

REFERENCES

- Bentham, G. (1873). Piperaceae. *Flora australiensis*. (Reeve: London). Vol. 6, pp. 203–206.
- Cronquist, A. (1981). *An Integrated System of Classification of Flowering Plants*. (Columbia University Press: New York).
- Forster, P.I. (2007). *Peperomia* Ruiz & Pav. In Wilson, A. (ed.), *Flora of Australia*. (ABRS: Canberra/CSIRO Publishing: Melbourne). Vol. 2, pp. 240–244.
- Nee, M. (2004). Piperaceae. In Smith, N., Mori, S.A., Henderson, A., Stevenson, D.W. & Heald, S.V. (eds), *Flowering Plants of the Neotropics*. (Princeton University Press: Princeton, New Jersey). pp. 296–297.
- Spokes, T.M. (2007). *Piper* L. In Wilson, A. (ed.), *Flora of Australia*. (ABRS: Canberra/CSIRO Publishing: Melbourne). Vol. 2, pp. 233–239.
- Spokes, T.M. & Forster, P.I. (2007). Piperaceae. In Wilson, A. (ed.), *Flora of Australia*. (ABRS: Canberra/CSIRO Publishing: Melbourne). Vol. 2, pp. 232–244.
- Tebbs, M.C. (1993). Piperaceae. In Kubitzki, K., Rohwer, J.G. & Bittrich, V. (eds), *The Families and Genera of Vascular Plants*. (Springer-Verlag: Berlin). Vol. 2, pp. 516–520.
- Thiele, K.R. & Adams, L.G. (1999). *The Families of Flowering Plants of Australia*. CD-ROM, Version 1.0 (Australian Biological Resources Study: Canberra).
- Verdcourt, B. (1996). Piperaceae. In Polhill, R.M. (ed.), *Flora of Tropical East Africa*. (A.A. Balkema: Rotterdam).



Pl. 1 *Piper macropiper* (Photo: B.M. Stuckey)