

Revision of *Andrachne* sect. *Pseudophyllanthus* (Euphorbiaceae), with the description of two new species from Madagascar

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Andrachne,
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ABSTRACT

Andrachne sect. *Pseudophyllanthus* is revised and a detailed sectional description is given. The section comprises the well-known *A. ovalis* from Southern Africa as well as two new species from Madagascar which are here described and illustrated for the first time. The systematic position of the section is discussed and a provisional key to the presumed relatives of the group is given.

RÉSUMÉ

Révision de *Andrachne* sect. *Pseudophyllanthus* (Euphorbiaceae), avec la description de deux nouvelles espèces de Madagascar.

MOTS CLÉS

Euphorbiaceae,
Phyllanthoideae,
Andrachne,
Madagascar,
Afrique du Sud.

Révision et description détaillée de *Andrachne* sect. *Pseudophyllanthus* qui renferme *A. ovalis*, espèce sud-africaine bien connue, ainsi que deux nouvelles espèces de Madagascar décrites et illustrés ici. La position systématique de la section est discutée et une clé de détermination provisoire, incluant les taxons supposés affins, est proposée.

INTRODUCTION

Andrachne L. is a genus of Euphorbiaceae-Phyllanthoideae with a disjunct distribution in the subtropics and tropics of Asia, Africa and America. The circumscription of *Andrachne* is controversial to the present day. MÜLLER ARGOVIENSIS (1866: 232-237) recognized six sections. When PAX & HOFFMANN (1922: 169-179) published the last taxonomic revision of the genus as a whole, they excluded the sections *Phyllanthopsis* (Scheele) Müll. Arg. and *Pseudo-*

phyllanthus Müll. Arg. from *Andrachne* and transferred them to *Savia* Willd. *Andrachne* sect. *Phyllanthopsis* contains the two North American species *Andrachne phyllanthoides* (Nutt.) J.M. Coult. and *A. arida* (Warnock & M.C. Johnst.) G.L. Webster. Section *Pseudophyllanthus* so far only comprised *A. ovalis* (Sond.) Müll. Arg. from Southern Africa.

POJARKOVA (1949, 1960) raised *Andrachne* sect. *Arachne* (Neck.) Endl. (based on *Arachne* Neck., nom. inval.) to generic rank as *Leptopus* Decne. In *Andrachne* s.str. she included *A. sect. Fruticulosae*

Pax & K. Hoffm., sect. *Phyllanthidea* (Didr.) Müll. Arg. and sect. *Telephioides* (Moench) Endl. She accepted PAX & HOFFMANN's view that sections *Pseudophyllanthus* and *Phyllanthopsis* are better placed in *Savia*.

WEBSTER (1994: 40) also recognized *Leptopus* as a separate genus, and placed it in a new monogeneric subtribe Leptopinae G.L. Webster. *Andrachne* s.str. remained as the only genus of subtribe Andrachninae Müll. Arg. This further separation was mainly based on ovule orientation, which is anatropous in *Leptopus* and hemitropous in *Andrachne* s.str.

Andrachne sect. *Phyllanthopsis* and sect. *Pseudophyllanthus* cannot, however, be accommodated in *Savia* (HOFFMANN 1994). WEBSTER (1994) explicitly included sect. *Phyllanthopsis* in *Leptopus* but did not mention *Andrachne ovalis* or sect. *Pseudophyllanthus*, to which it belongs. This section combines characters of *Andrachne* s.str. and *Leptopus*, and is at present not satisfactorily placed (HOFFMANN 1994).

Two new species of this hitherto monotypic section are described here. More than *A. ovalis* from Southern Africa, these two Madagascan species resemble members of *Meineckia* in the subtribe Pseudolachnostylidinae Pax & K. Hoffm. A possible closer relationship between *Andrachne* and *Meineckia* has to my knowledge not yet been considered in the literature.

This paper is part of a systematic study of the Euphorbiaceae-Phyllanthoideae and a precursor for the revised Euphorbiaceae-Phyllanthoideae treatment for the "*Flore de Madagascar et des Comores*".

ANDRACHNE L. sect. PSEUDOPHYLLANTHUS Müll. Arg.

In DC., Prodr. 15(2): 233 (1866); Benth. & Hook. f., Gen. pl. 3: 271 (1880); Pax in Engl. & Prantl, Nat. Pflanzenfam. 3(5): 15 (1890); Petra Hoffm., Bot. Jahrb. Syst. 116: 327 (1994).

Savia Willd. sect. *Maschalanthus* (Nutt.) Pax & K. Hoffm. pro parte in Engl., Pflanzenz. 81: 182 (1922); Nat. Pflanzenfam., ed. 2, 19c: 67 (1931).

TYPE. — *Andrachne ovalis* (Sond.) Müll. Arg.

Dioecious, more rarely monoecious shrubs or small trees 1-6 m, young branches terete or

slightly flattened. Indumentum scarce, simple. Stipules persistent. Petiole canaliculate adaxially. Leaves alternate, petiolate, simple, symmetrical, entire, pinnately veined, eglandular, without domatia.

Inflorescences one- to few-flowered, axillary, borne directly in the leaf axils or on short, unbranched (rarely once-branched), leafless axes; pistillate and staminate flowers in separate leaf axils. Flowers pedicellate, 5-merous (rarely 4- or 6-merous). Pedicel articulate at the base. Sepals imbricate, free. Petals much shorter to nearly as long as sepals. Disc extrastaminal, annular, more or less antistaminally lobed; lobes apically more or less emarginated. Stamens anti-sepalous, filaments fused for about half their length, anthers basifix, latrorse in bud, longitudinally dehiscent, thecae parallel. Pistillode present. Styles bipartite to the base. Stigmas apically dilated. Ovules 2 per locule, anatropous (funicle attachment below micropyle), sharing one obturator.

Fruits capsular, depressed globose, dehiscence septical, loculicidal and septifragal; dehiscence of septa in one straight line; exo- and mesocarp separate from the endocarp after dehiscence. Endocarp lignified. Columella persistent, 2.5-6 times longer than the narrowest width, acutely 3-angled, base and apex thickened; perianth, disc and stigmas persistent at fruit maturity. Seeds 2 per locule (rarely one), ecarunculate, roughly ovoid, nearly triangular in cross section, rugose (sculpture reminding of a brain), perichalazal annulus absent to small. Endosperm in mature seeds copious. Cotyledons thin, flat, oriented parallel to the pericarp; radicle terete, much longer than wide.

Three species in Southern Africa and Madagascar.

NOTE. — The breeding system is difficult to establish for the two species described here due to the small number of collections; however, all the specimens examined were either pistillate or staminate. In comparison, *A. ovalis* was found to be monoecious in a number of specimens and apparently dioecious in the remainder.

Key to the species of *Andrachne* sect. *Pseudophyllanthus*

- 1. Leaves long acuminate, up to 8.5 × 7 cm; SE Madagascar **A. cerebroides**
- 1'. Leaves short acuminate to rounded, up to 6.5 × 3 cm 2
- 2. Pistillate pedicels 15 mm, fruiting pedicels (15-) 20-50 mm long; pistillate sepals 3-4 × 2.5-4 mm; fruit 4 × 5-6 mm; styles 1-1.5 mm long; SW Madagascar **A. gracilipes**
- 2'. Pistillate pedicels 4-8 mm, fruiting pedicels 5-15 mm long; pistillate sepals 2 × 1 mm; fruit 5-6 × 8-10 mm; styles 0.5 mm long; South Africa, Swaziland and Zimbabwe **A. ovalis**

***Andrachne cerebroides* Petra Hoffm., sp. nov.**

Species A. ovalis similis sed foliis majoribus longe acuminatis petiolis pedicellis femineisque longioribus robustisque sepalis femineis majoribus differt.

TYPUS. — SF (*Capuron*) 23576, Madagascar, prov. Fianarantsoa, Est, au Sud de Farafangana (route de Manombo, aux P.K. 13-17), restes de forêt, sur latérites de basalte, 11 Oct. 1964 (holo-, P!; iso-, K!, TEF).

Apparently dioecious shrub 2.5 m. Young twigs flattened, green, glabrous. Leaves ovate, apically long acuminate, hardly mucronate, basally obtuse to rounded, shortly decurrent, 3.5-8.5 cm long, 1.5-7 cm wide, 1.5-2.8 times longer than wide, glabrous, thinly chartaceous, moderately shiny, drying olive-green, concolourous, midvein slightly raised to slightly impressed adaxially, secondary veins 4-6 pairs, tertiary and finer venation hardly prominent, lax, reticulate. Petiole 4-12 mm long, 0.5-1 mm wide, channelled adaxially, glabrous or with a few hairs. Stipules persistent, deltoid, apically acute to acuminate, 1-1.5 mm long, 0.7-1 mm wide, glabrous or sparsely hairy, margin hyaline, fimbriate.

Staminate inflorescence axes up to 5 mm long, rarely branched once, curled, with numerous (up to 40 per inflorescence) pedicel stumps ca. 0.2 mm long ("podia" in WEBSTER 1965: 325) arranged distichously and in pairs (Fig. 1N). Bracts 2 per flower, deltoid, unequal, larger on the outside than within each pair of flowers, 0.5-0.8 mm long, 0.2-0.5 mm wide, pubescent abaxially, glabrous adaxially, margins fimbriate. Buds globose, slightly depressed apically. Staminate flowers (1-)2-3 per inflorescence, 2 mm long, 3 mm wide. Pedicel filiform, 3-5 mm long, 0.2-0.4 mm wide, glabrous, articulate just above the

base (articulation practically invisible before abscission, leaving a "podium" (WEBSTER 1965: 325) after abscission). Sepals 5, more or less orbicular, 1.5-2 mm long, 1.5-2 mm wide, sparsely pilose abaxially, glabrous adaxially, margin entire, hyaline, sparsely fimbriate. Petals 5, oblong to spatulate, apically rounded, basally shortly clawed, 0.8-1.2 mm long, 0.5-0.8 mm wide, glabrous, margin erose. Disc 1.5 mm in diameter, antisepalously lobed, glabrous; lobes 0.5 mm long, emarginate, no sutures visible. Androecium 1 mm long, 1 mm wide, glabrous; stamens 5, antisepalous; filaments terete, fused at the base for ca. 1/2 of their length, bent downwards apically; anthers 0.5 mm long, 0.6-0.8 mm wide, deeply 4-lobed. Pistillode obconical, 3-lobed apically, 0.3 mm long, 0.2 mm wide, pilose.

Pistillate flowers solitary or in twos, 2-3 mm long, 4-6 mm wide. Bracts several per flower, deltoid, ca. 0.5 mm long, ca. 0.5 mm wide, pilose, margin fimbriate. Pedicel terete, 15-25(-55) mm long, 0.3-0.5 mm wide at the base, 0.6-1 mm wide at the apex, glabrous, articulate ca. 1 mm from the base, leaving a "podium" (WEBSTER 1965: 325) after abscission. Sepals 5, usually unequal, oblong to orbiculate, 2-3 mm long, 2-2.5 mm wide, glabrous, slightly accrescent (up to 4 × 4 mm), spreading at anthesis, reflexed at fruit maturity, margin hardly hyaline, entire. Petals elliptic, spatulate or orbiculate, apically rounded, 0.5-1(-2) mm long, 0.3-0.7(-1.5) mm wide, membranaceous, glabrous, margin slightly erose, sometimes absent, small and large petals in the same flower. Disc annular, often antipetalously lobed, lobes apically emarginate, 0.4-0.5 mm long, more or less fleshy, glabrous, margin slightly erose or entire, tearing irregularly at fruit maturity. Ovary globose to nearly cylindrical, densely

whitish appressed-pubescent. Styles horizontally spreading, bipartite to the base, the branches terete, 0.5-1 mm long, hardly tapering towards the apex, glabrous. Obturator without suture between ovules.

Fruits olive-green when dry, pubescent; dehiscence of septa in only one line running roughly parallel to the pericarp, this line erose and irregular as septa are very thin and brittle. Fruiting pedicel 22-55 mm long, 0.5 mm wide at the base, 1.5 mm wide at the apex. Columella ca. 5 times longer than the narrowest width, 3.5-4 mm long, 0.7-0.8 mm wide in the middle, base thickened to 1.2 mm, apex thickened to 1 mm. Exo- and mesocarp together ca. 0.2 mm thick when dry, rough on inner surface. Endocarp ca. 0.5 mm thick, brownish yellow. Seeds 3.5-4 mm long, 2.5-3 mm wide, medium brown, with ca. 8 vaguely defined, slightly sinuous folds running at right angles from the raphe to the dorsal part of the seed, some of them branching, resulting in 15-18 anastomosing folds running across the dorsal part, folds 2-3 times narrower than the flat ridges between them, in some places fading into a shallow irregularly foveolate-rugulose pattern, extending on the inside of the seed-coat up to 0.3 mm deep into the endosperm, raphe only slightly impressed, extending ca. 0.2 mm deep into the endosperm. Cotyledons oblong, apically nearly truncate, 2.5 × 1.8 mm; radicle 1.5 mm long, 0.5 mm in diameter. — Fig. 1.

ETYMOLOGY. — The epithet refers to the brain-like sculpture of the seed.

DISTRIBUTION. — Madagascar, Fianarantsoa province, around Farafangana and Manombo. — Fig. 3.

ECOLOGY. — Evergreen wet lowland forest, on laterite derived from basalt. Humid bioclimatic zone of CORNET (1974).

VERNACULAR NAMES AND USES. — None recorded.

PARATYPES. — MADAGASCAR, Fianarantsoa province: *Bosser 18539*, Farafangana, vestige de forêt de basse altitude, Dec. 1963 (P!); *Bosser 18600*, 15 km de Farafangana, forêt de basse altitude, Dec. 1963 (P!); *SF (Capuron) 23592*, au Sud de Farafangana (route de Manombo, au P.K.18,5), restes de forêt, sur latérites de basalte, 14-17 Oct. 1964 (P!, TEF!).

***Andrachne gracilipes* Petra Hoffm., sp. nov.**

Species A. ovali similis sed petiolis pedicellis femineisque longioribus sepalis femineis majoribus fructibus minoribus stylis longioribus differt.

TYPUS. — *Chauvet 372*, Madagascar, prov. Tuléar [Toliara], Gorges du Fiherenana, 18 Nov. 1962 (holo-, P!; iso-, TEF).

Apparently dioecious shrub 2-3 m. Young twigs flattened or terete, striate, light brown, glabrous. Leaves ovate, apically acute to rounded, often mucronate, basally acute to rounded, very shortly decurrent, 2.5-6 cm long, 1-2.7 cm wide, 1.5-3.1 times longer than wide, glabrous or with a few hairs along the midvein abaxially, membranaceous, dull, drying olive-green, concolourous or slightly paler abaxially, midvein slightly raised to slightly impressed adaxially, secondary veins 3-7 pairs, tertiary and finer venation lax, reticulate. Petiole 7-13 mm long, 0.3-0.5 mm wide, deeply and narrowly channelled adaxially, glabrous or with a few hairs. Stipules persistent, ovate, apically obtuse to rounded, 1.5-2 mm long, ca. 1 mm wide, glabrous, margin hyaline, fimbriate.

Staminate flowers not known. Pistillate flowers solitary, ca. 3 mm long, ca. 6 mm wide. Bracts 3(-4?) per flower, ovate, 1.5-2 mm long, 0.7-1 mm wide, glabrous, margin hyaline. Pedicel terete, 15 mm long, 0.3 mm wide at the base, 0.6 mm wide at the apex, glabrous, articulate just above the base (articulation practically invisible before abscission). Sepals 5, sometimes unequal, spatulate, rounded to obtuse, 3-4 mm long, 2.5-3 mm wide, slightly accrescent (up to 5 × 4 mm, becoming elliptic to orbiculate), spreading up to fruit maturity, glabrous, margin narrowly hyaline, slightly erose and with scattered hairs. Petals spatulate, apically rounded, hardly exerted from the disc, 0.5-1 mm long, 0.3-0.5 mm wide, membranaceous, glabrous, margin finely erose, with a few hairs. Disc annular, 0.4 mm long, membranaceous to chartaceous, glabrous, margin finely erose; at fruit maturity tearing between the sepals, then appearing antiseptally lobed or divided. Ovary ovoid to globose, densely whitish pubescent. Styles erect, bipartite to the base, the branches terete, 1-1.5 mm long, hardly tapering towards the apex, glabrous. Obturator with a suture between the ovules.

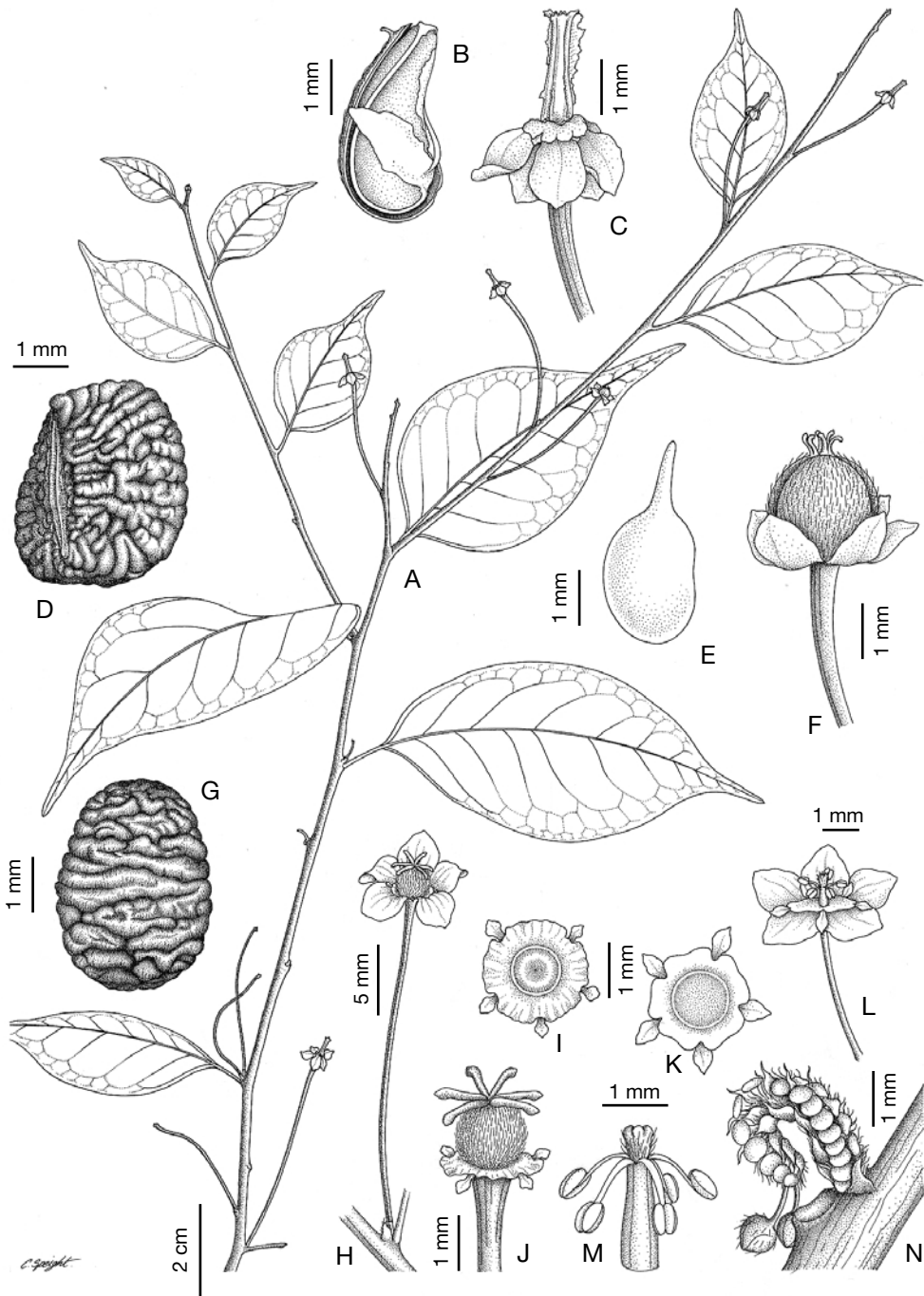


Fig. 1. — *Andrachne cerebrooides*: **A**, habit with columellae; **B**, mericarp of fruit after dehiscence; **C**, columella with persistent disc, petals and sepals; **D**, seed, lateral view; **E**, embryo, lateral view; **F**, young fruit; **G**, seed, dorsal view; **H**, pistillate flower, showing "podium" at base of pedicel; **I**, disc and petals of pistillate flower; **J**, pistillate flower, sepals removed; **K**, disc and petals of staminate flower; **L**, staminate flower; **M**, androecium; **N**, staminate inflorescence showing "podia" left after abscission and two buds. A-J, drawn from SF (Capuron) 23576; K-M, drawn from Capuron 23592; N, drawn from Bosser 18539.

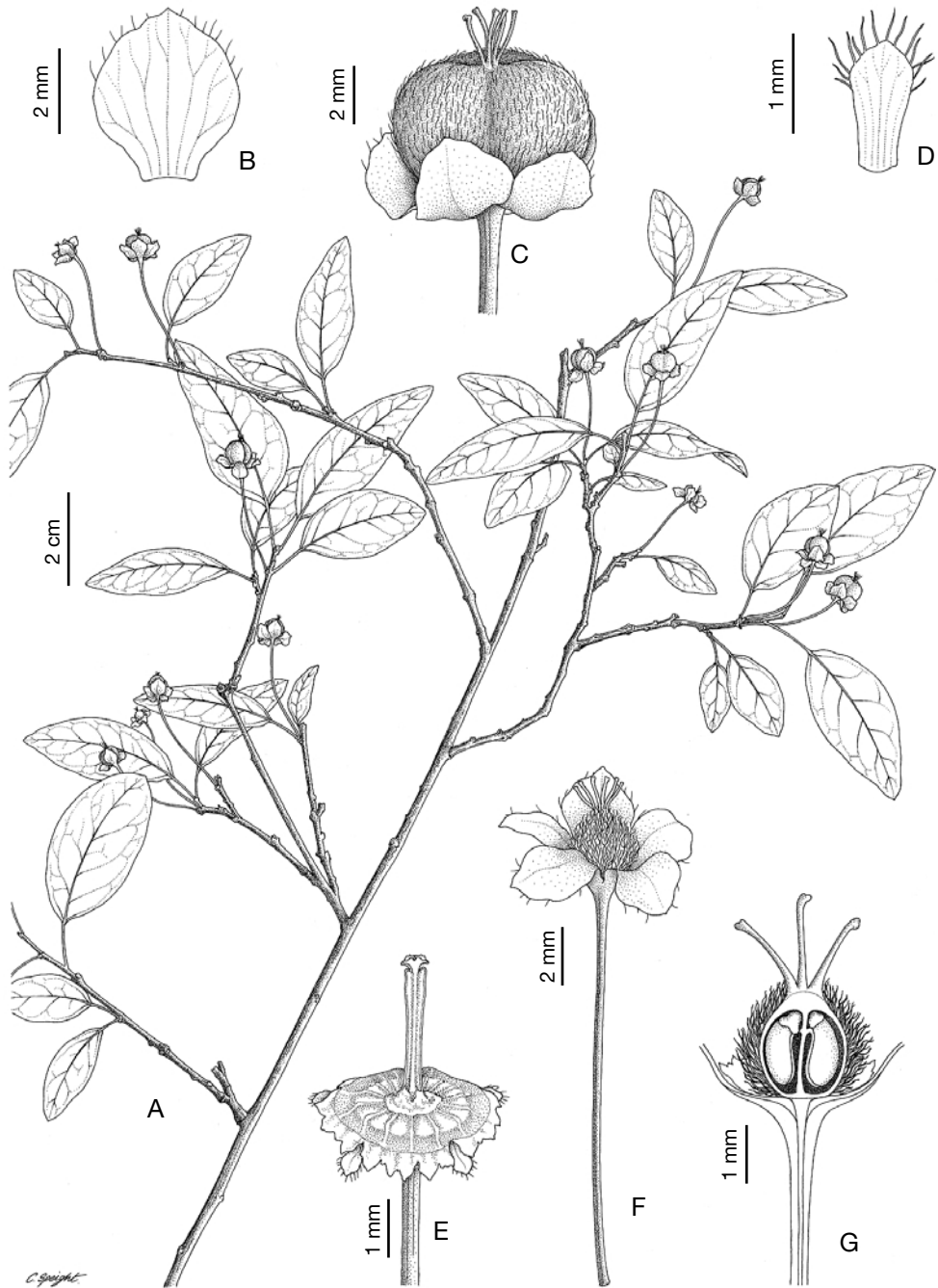


Fig. 2. — *Andrachne gracilipes*: **A**, habit with pistillate flowers; **B**, pistillate sepal; **C**, fruit; **D**, pistillate petal; **E**, columella with persistent disc and petals; **F**, pistillate flower; **G**, longitudinal section of pistillate flower. Drawn from Chauvet 372.

Fruits depressed globose, ca. 4 mm long, 5-6 mm wide, olive-green when dry, pubescent, 3-lobed, the lobes more or less rounded, without or with very faint dorsal ridges along each lobe; dehiscence of septa apparently irregular but difficult to establish as septa are extremely thin and brittle. Fruiting pedicel (15-)20-50 mm long, 0.5-0.6 mm wide at the base, 1-1.2 mm wide at the apex. Columella ca. 6 times longer than the narrowest width, 4 mm long, 0.7 mm wide in the middle, base thickened to 2 mm, apex thickened to 1.2-1.5 mm. Exo- and mesocarp together ca. 0.2 mm thick when dry, reticulate on inner surface. Endocarp ca. 0.4 mm thick, brownish yellow. Seeds 3.5-4 mm long, 2.5-3 mm wide, very dark brown, rugose, with 6-7 sharply defined, slightly sinuous folds running at right angles from the raphe to the dorsal part of the seed, some of them branching, resulting in 10-12 anastomosing folds running across the dorsal part, folds 2-3 times narrower than the flat ridges between them, extending on the inside of the seed-coat ca. 0.7 mm deep into the endosperm, raphe only slightly impressed, extending ca. 0.2 mm deep into the endosperm. Cotyledons oblong, apically nearly truncate, 2.5 × 1.5 mm; radicle 1.8 mm long, 0.4 mm in diameter. — Fig. 2.

ETYMOLOGY. — The epithet refers to the slenderness and length of the petiole and pedicel of this species.

DISTRIBUTION. — Madagascar, Toliara province, around the Analavelona massif and the Fiherenana river. — Fig. 3.

ECOLOGY. — Dry deciduous forest, over basalt and sandstone. As Madame CHAUVET almost certainly collected the type at 250-300 m altitude (J. BOSSER, pers. comment), this species ranges between ca. 250 and 1250 m altitude. Subarid bioclimatic zone of CORNET (1974).

VERNACULAR NAMES AND USES. — None recorded.

PARATYPES. — MADAGASCAR, Toliara province: *Humbert 14232*, Forêt d'Analavelona au N du Fiherenana, sur basalte et grès, 950-1250 m, Mar. 1934 (P!); *Humbert 19739*, Forêt d'Analavelona (bassin du Fiherenana), forêt trophophile sur basalte, 1000-1200 m, 15-19 Dec. 1946 (P!).

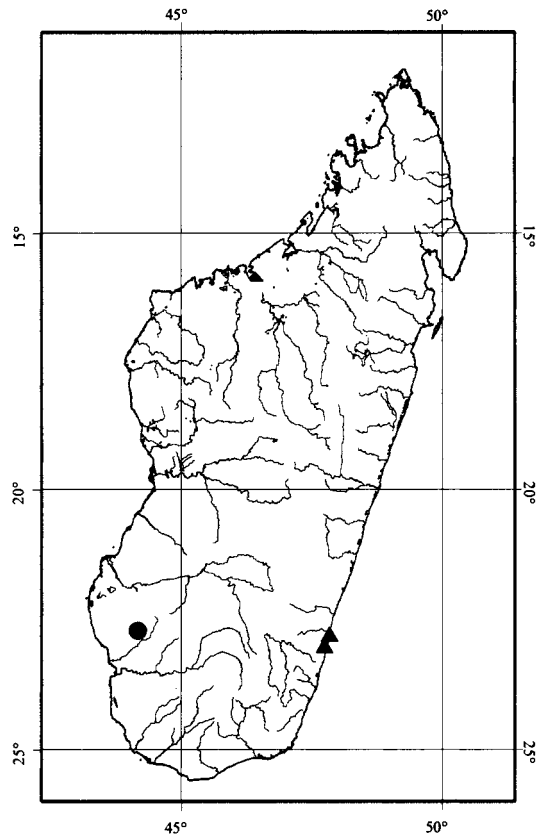


Fig. 3. — Geographic distribution of *Andrachne cerebroides* (triangles) and *Andrachne gracilipes* (circle).

Andrachne ovalis (Sond.) Müll. Arg.

Linnaea 32: 78 (1863); in DC., Prodr. 15(2): 233 (1866); Burtt Davy, Man. Pl. Transvaal: 298 (1932); Hutchinson in Thiselton-Dyer, Fl. Cap. 5(2): 386 (1925); Compton, Fl. Swaziland: 306 (1976); Coates Palgrave, Trees of Southern Africa, ed. 2, rev.: 394 (1983); Radcliffe-Smith in Pope, Fl. Zambesiaca 9(4): 27 (1996). — *Savia ovalis* (Sond.) Pax & K. Hoffm. in Engl., Pflanzenz. 81: 182 (1922). — *Phyllanthus ovalis* Sond., Linnaea 23: 135 (1850). — Type: *Zeyher 3819*, Swartkops River (lecto-, K!, here designated).

Phyllanthus dregeanus Scheele, Linnaea 25: 585 (1852). — *Andrachne dregeana* (Scheele) Baill., Adansonia 3: 164 (1863). — Type: *Drège 8220*, inter Morley et Omtata locis lapidosis, 1000'-2000' alt., Majo (lecto-, K!, here designated; isolecto-, G!, K!).

Andrachne capensis Baill., Adansonia 3: 163 (1863). — Type: *Zeyher 246* (herb. Juss.), South Africa, Cap (lecto-, P, here designated; isolecto-, HBG!).

Clutia galpinii Pax pro parte, Bull. Herb. Boissier 6: 736 (1898), as "*Clytulia galpini*". — Note: One of the two syntypes, *Galpin 961*, is in fact *Andrachne ovalis* (Sond.) Müll. Arg.

Dioecious, more rarely monoecious shrub to small tree 0.5–6 m. Bark grey. Young twigs terete, slightly striate, green, glabrous. Leaves ovate to elliptic, more rarely almost orbicular, apically acute, shortly acuminate or obtuse, more rarely rounded, hardly mucronate, basally obtuse to acute, shortly decurrent, (1–)1.5–6.5 cm long, (0.5–)0.7–3 cm wide, 1.4–2.5 times longer than wide, nearly glabrous adaxially, long pilose all over or only along the midvein abaxially, membranaceous to chartaceous, dull to shiny adaxially, dull abaxially, drying olive-green, usually lighter abaxially than adaxially, midvein slightly raised to slightly impressed adaxially, secondary veins 3–5 pairs, tertiary and finer venation hardly prominent, lax, reticulate. Petiole 3–9(–11) mm long, 0.3–1 mm wide, channelled adaxially, pilose to glabrous. Stipules persistent, deltoid, apically acute to acuminate, 0.9–1.5 mm long, 0.5–0.7 mm wide, glabrous or sparsely hairy, margin hyaline, fimbriate.

Staminate inflorescence axes up to 3 mm long, rarely branched, with several pedicel stumps ca. 0.2 mm long ("podia" in WEBSTER 1965: 325). Bracts 2 per flower, deltoid, acute, 0.8–1 mm long, 0.4–0.7 mm wide, long pilose abaxially, glabrous adaxially, margins long fimbriate. Buds globose. Staminate flowers 2–9 per inflorescence, 1–2 mm long, 2–3 mm wide. Pedicel filiform, 2–9 mm long, 0.1–0.3 mm wide, glabrous, articulate just above the base (articulation practically invisible before abscission, leaving a "podium" (WEBSTER 1965: 325) after abscission). Sepals 5, obovate to oblong, apically rounded, 1.5 mm long, 0.8–1.3 mm wide, pale green to yellowish green, glabrous to pilose abaxially, glabrous adaxially, margin entire to erose, hyaline. Petals 5, obovate to obcordate, apically rounded to slightly emarginate, basally shortly clawed, 1–1.2 mm long, 0.8–1 mm wide, white, slightly shorter than the sepals, glabrous, margin slightly erose to fimbriate. Disc 1.5 mm in diameter, glabrous, antiseptally 5-lobed, lobes deeply emarginate; disc thus appearing 10-lobed, sometimes irregularly crenate; lobes ca. 0.3 mm long, no sutures visible.

Androecium 1.5 mm long, 1.5 mm wide, glabrous; stamens 5, antiseptally; filaments terete, fused at the base for ca. 1/2 of their length, the free part spreading; anthers 0.3–0.5 mm long, 0.3–0.5 mm wide, deeply 4-lobed. Pistillode 3-partite, its parts apically dilated, 0.5–1 mm long, 0.5 mm wide, glabrous to pubescent.

Pistillate flowers solitary or in twos, 2 mm long, 3 mm wide. Bracts several per flower, deltoid, 0.5–0.8 mm long, 0.5–0.8 mm wide, pilose, margin fimbriate. Pedicel terete, 4–8 mm long, 0.2 mm wide at the base, 0.7–1 mm wide at the apex, glabrous, articulate 0.5–1 mm from the base, leaving a "podium" (WEBSTER 1965: 325) after abscission. Sepals 5, oblong to ovate or obovate, apically rounded, 2 mm long, 1 mm wide, glabrous to pilose adaxially, glabrous abaxially, not accrescent, spreading at anthesis, reflexed at fruit maturity, margin hyaline, entire to erose. Petals 5, spatulate or orbiculate, apically rounded, 1 mm long, 1 mm wide, extending to half the length of the sepals, membranaceous, glabrous, margin slightly erose, fimbriate. Disc annular, ca. 1.5 mm in diameter, irregularly crenulate, more or less fleshy, glabrous, tearing irregularly at fruit maturity. Ovary globose to ovoid, densely appressed-pilose. Styles horizontally spreading, bipartite to the base, the branches terete, 0.5 mm long, hardly tapering towards the apex, glabrous. Obturator without suture between ovules.

Fruits depressed-globose, 3-lobed, 5–6 mm long, 8–10 mm wide, olive-green to medium brown when dry, sparsely pilose to glabrous; dehiscence of septa in one straight line. Fruiting pedicel 5–15 mm long, 0.4–1 mm wide at the base, 0.5–1.5 mm wide at the apex. Columella 2.5–5 times longer than the narrowest width, 2.5–3.5 mm long, 0.7–1 mm wide in the middle, base thickened to 1–1.5 mm, apex thickened to 1.5 mm. Exo- and mesocarp together ca. 0.2 mm thick when dry, reticulate on inner surface. Endocarp 0.4–0.7 mm thick, brownish yellow. Seeds (3–)4 mm long, 3 mm wide, medium brown, irregularly rugose (especially when dry), folds 3–5 times narrower than the flat ridges between them, extending on the inside of the seed-coat up to 0.3 mm deep into the endosperm, raphe only slightly impressed, extending ca. 0.2 mm deep into the endosperm. Cotyledons oblong, apically nearly truncate, 2.5 × 2 mm; radicle 1 mm long, 0.5 mm in diameter.

DISTRIBUTION. — South Africa (Eastern Cape, Gauteng, KwaZulu/Natal, Mpumalanga, Northern, and Western Cape Provinces), Swaziland and Zimbabwe.

ILLUSTRATIONS. — COATES PALGRAVE 1983: 394, leaf; HOFFMANN 1994: 328, flowers; RADCLIFFE-SMITH 1996: 28, Tab. 5, habit, flowers, fruit.

ECOLOGY. — In mixed woodland, subtropical forest relicts, wet forest, on forest edges, under trees, in grass, on stream banks, in ravines; on moist to well-drained, stony soil, in light shade; at (300-)1000-1850 m altitude.

VERNACULAR NAMES. — South Africa: *Bastard lightning bush*, *Basterbliksembos* (COATES PALGRAVE 1983: 394); *Umbezo* (BURTT DAVY 1932: 288).

USES. — Said to drive snakes away by the pungent smell of the roots; powdered roots used as insecticide, against chest complaints, headaches, snakebites and scalp parasites in African folk-medicine (COATES PALGRAVE 1983: 394); destroys fleas (*Cooper 1168*, K).

NOTE. — Leaves are said to smell of HCN when wilted (*Story 1887*, K).

SPECIMENS EXAMINED. — SOUTH AFRICA: *Acocks 9341*, Eastern Cape Prov., Stutterheim Div., Donga Range, forest margin, 15 Nov. 1942 (K!); *Acocks 12251*, KwaZulu/Natal Prov., Umzimkulu, ca. 2800 ft, sub-tropical forest relicts on S slopes, under trees, 23 Nov. 1945 (K!); *Bayliss BRI 1452*, Eastern Cape Prov., near Loerie, 1200 ft, dry, light bush, 28 June 1975 (K!); *Burchell 3644*, Eastern Cape Prov., Albany Div., Blue Krantz, coast region (K!); *Burchell 4272*, Eastern Cape Prov., near Uitenhage (K!); *Burchell 5216*, Western Cape Prov., Knysna Div., Kaatjes Kraal, coast region (K!, M!); *Burchell 5226*, Western Cape Prov., Knysna Div., Kaatjes Kraal, coast region (K!); *Codd 9971*, Northern Prov., Waterberg, "Koedoebossie", Farm Ratelhoek, 7 miles W of Twentyfour Rivers, mixed woodland, 29 Jan. 1960 (G!); *Cooper 256*, KwaZulu/Natal Prov., Collins Pass near Elandslaagte, farm "Bosberg", 27 Feb. 1979 (K!); *Cooper 1108*, KwaZulu/Natal Prov., 1862 (BM!, K!); *De Vries 55*, Eastern Cape Prov., Amabele, 14 Jan. 1940 (K!); *Drège 8220*, Eastern Cape Prov., between Morley and Umtata River (Tembuland) (G!, K!), type of *Phyllanthus dregeanus*; *Drège s.n.*, Eastern Cape Prov., King Williamstown Div., Buffalo River (G!, K!); *Ecklon & Zeyher Euphorb. No. 31*, s.loc. (G!), original syntype of *Andrachne ovalis*; *Fourcade 217*, Western Cape Prov., Knysna Div., Keurbooms River, at Postpad, May 1908 (K!); *Gerstner 7016*,

KwaZulu/Natal Prov., 3000 ft, mostly under bush, 1949, (BM!, K!, MO!); *Hilliard & Burtt 10056*, KwaZulu/Natal Prov., Ngotshe Distr., Itala Nature Reserve, ca. 5000 ft, in grass on slope above forest scrub, 5 Apr. 1977 (K!, MO!); *Hutchinson 2279*, Northern Prov., Woodbush, 23 Dec. 1928 (K!); *Kleber s.n.*, Mpumalanga Prov., Piet Retief, a kloof at Piet Retief (K!); *Krauss s.n.*, Western Cape Prov., George, in sylvis (M!); *Gerrard 1162*, KwaZulu/Natal Prov. (K!); *Rehmann 5922*, Northern Prov., Houtbosh, 1875-80 (K!); *Marais 120*, Northern Prov., The Downs, edge of bush along road to The Knuckles, 27 Jan. 1953 (K!); *Moffett 695*, Southern Cape, Deepwalls Forest Reserve, below offices (South side), wet forest, 1 Apr. 1975 (K!); *Moll 853*, KwaZulu/Natal Prov., Lions River Distr., Umgeni Poort, 5500 ft, *Podocarpus* forest, especially near the upper margin with more light, 19 May 1964 (K!); *Moll 2868*, KwaZulu/Natal Prov., Lions River Distr., Karkloof Forest, 4500 ft, streambank, 19 Dec. 1965 (K!); *Mueller & Scheepers 82*, Northern Prov., 2 km E of Steilkop, New Agatha Forest Reserve, Forest E of campsite, along forest margin, 22 Apr. 1971 (K!); *Rendle 180*, Glebe forest, 1929 (BM!); *Rogers 18071*, Northern Prov., Pietersburg Div., Modjadjes, Dec. 1915 (K!); *Rogers 21115*, Mpumalanga Prov., Barberton Div., Kaapsche Hoop, 3100 ft (S!); *Rogers 21952*, Northern Prov., Pietersburg Div., The Downs, Dec. 1917 (K!); *Rogers & Moss 419*, Northern Prov., Pietersburg Div., The Downs, ca. 4000 ft, Nov. 1917 (K!); *Schlechter 2362*, Western Cape Prov., prope George, 300 m, in sylvis, 20 Mar. 1893 (K!); *Schlieben 7705*, Gauteng Prov., Pretoria Distr., Magaliesberg, Hornsnek ca. 12 ml. westlich von Pretoria, ca. 1550 m, buschig, Bergrücken, 20 Dec. 1955 (G!); *Story 1887*, Northern Prov., Pieterburg Distr., top of Magoebaskloof, 2 m N of Haenertsburg, woodbush fork, 6 Feb. 1947 (K!); *Strey 3287*, Northern Prov./Mpumalanga Prov. border, Lydenburg Distr., beginning of Erasmus Pass, ravine bush, stone slope, 18 Apr. 1960 (K!, M!); *van der Merwe 317*, Mpumalanga Prov., Twello indigenous forest, 9.7 km ESE. of Barberton, Endahwin, 4300 ft, moist forest soil, 1974 (K!); *van Wyk 5515*, Northern Prov., Tzaneen, The Downs, 13 Mar. 1982 (M!); *Verreaux 1831*, Cap de Bonne-Esperance, Villa Uitenhagen, Dec. 1827 (G!); *Wood 6041*, KwaZulu/Natal Prov., near Nottingham Road, 4000-5000 ft, edge of wood, 14 Feb. 1896 (BM!); *Zeyher 246*, s.loc. (HBG!, P), type of *Andrachne capensis*; *Zeyher 3819*, Swartkops River (K!); lectotype of *Andrachne ovalis*; *Zwackh s.n.*, Cap b. Sp., 27 Dec. 1847 (M!); *Zwackh s.n.*, Cap b. Sp., 30 Mar. 1848 (M!). — SWAZILAND: *Compton 31894*, Mbabane Distr., Malandela, forest margin, 16 Jan. 1964 (K!). — ZIMBABWE: *Meara 101*, Umtali (E. Mutare), Umtali Heights, 19 Jan. 1974 (B!, K!, M!, MO!); *Meara 106*, Umtali (E. Mutare), Umtali Heights, 19 Jan. 1974 (K!, MO!, US!); *Wild 2229*, Chirinda, forest edge, 26 Oct. 1947 (K!).

DISCUSSION

When the material of the two new species described here was first discovered in the Paris herbarium, they were believed to be new species of *Meineckia*, a genus which is well represented in Madagascar. Upon closer examination, however, both taxa differ from all species of *Meineckia* in the presence of petals and in the dense indumentum of the ovaries (WEBSTER 1965). On the other hand, the two new species agree in all but some quantitative characters (see key to species, above) with *Andrachne ovalis* from Southern Africa, hitherto the sole member of *Andrachne* sect. *Pseudophyllanthus*. The two new species are therefore assigned to this section. It can be assumed that these three species form a monophyletic group. *Andrachne cerebroides* and *A. gracilipes* represent the first record of the genus *Andrachne* from Madagascar.

The systematic position of sect. *Pseudophyllanthus* is unresolved (HOFFMANN 1994). It does not fit well into either of the two genera (*Andrachne* s.str. and *Leptopus*) resulting from the split of *Andrachne* s.l. based on ovule configuration. *Andrachne ovalis* also holds an intermediate position with regards to seed morphology and anatomy. The seeds display a strong similarity to both *Andrachne* s.str. and *Leptopus*, but also share characters with those of *Meineckia* (STUPPY 1996: 159, 168 and pers. comm.). The genus *Meineckia* is here understood in the broad sense of RADCLIFFE-SMITH (1997), i.e. including *Zimmermannia* and *Zimmermanniopsis*.

The combination of characters found in *Andrachne* sect. *Pseudophyllanthus* (flowers petaliferous, pistillode present, ovules anatropous, seeds rugose) is not provided for in the most recent key

to the subtribes of the tribe Phyllantheae (WEBSTER 1994: 40). The following key has been compiled using original data as well as data from POJARKOVA (1960) and WEBSTER (1965, 1994), in order to facilitate recognition of *Andrachne* sect. *Pseudophyllanthus*.

Table 1 shows the taxonomically significant characters of *Andrachne* sect. *Pseudophyllanthus* in comparison with the three most similar genera. *Andrachne* s.str., *Leptopus* and *Meineckia* are currently assigned to three different subtribes of the tribe Phyllantheae (WEBSTER 1994). It can be seen from the table that *Andrachne* sect. *Pseudophyllanthus* differs in at least two characters from each of the three other taxa.

Faced with such contradictory morphological evidence, it is at present impossible to establish the closest relative of *Andrachne* sect. *Pseudophyllanthus*. Amendment of the generic circumscription of either *Leptopus* or *Meineckia* to include *Andrachne* sect. *Pseudophyllanthus* would at this point be arbitrary as there is no evidence that either genus is its sister group. At the same time I am reluctant to raise the section to generic rank in the absence of molecular evidence. This would only take the problem to the next taxonomic level of assigning the new genus to a subtribe.

Since the South African species has been placed in *Andrachne* for most of its history, it seems best to maintain it in that genus for the time being, and to describe the closely related Madagascan species in the genus *Andrachne* as well. It is hoped that first molecular data can be presented soon. The lack of recent taxonomic treatments for both *Andrachne* and *Leptopus* at the species level is a further predicament. A revi-

Key to the taxa most similar to *Andrachne* sect. *Pseudophyllanthus*

1. Plant up to 0.5 m tall. Ovules hemitropous. Staminate disc dissected. Seeds sculptured.
Plants monoecious **Andrachne** s.str.
- 1'. Plant up to 6 m tall. Ovules anatropous. Staminate disc dissected or annular. Seeds smooth or sculptured.
Plants monoecious or dioecious 2
2. Seeds smooth. Staminate disc dissected or annular. Plants dioecious **Leptopus**
- 2'. Seeds rugose. Disc annular. Plants monoecious or dioecious 3
3. Petals absent. Ovaries glabrous. Filaments connate or free **Meineckia**
- 3'. Petals present. Ovaries hairy. Filaments connate **Andrachne** sect. **Pseudophyllanthus**

TABLE 1. — Comparison of principal differential characters of *Andrachne* sect. *Pseudophyllanthus*, *Andrachne* s.str., *Leptopus* and *Meineckia*.

	<i>Andrachne</i> sect. <i>Pseudophyllanthus</i>	<i>Andrachne</i> s.str.	<i>Leptopus</i>	<i>Meineckia</i>
Plant	mon-/dioecious	monoecious	dioecious	mon-/dioecious
Habit	shrubs/small trees	subshrubs/herbs	shrubs	shrubs/subshrubs
Height	up to 6 m	up to 0.5 m	up to 6 m	up to 5 m
Petals	present	present	present	absent
Disc	annular	dissected	dissected/annular	annular
Filaments	connate	free/connate	free/connate	connate
Ovary	pubescent	glabrous/glandular	glabrous/pubescent	glabrous
Ovules	anatropous	hemitropous	anatropous	anatropous
Seeds	sculptured	sculptured	smooth	sculptured
Endosperm	slightly runcate	not runcate	not runcate	slightly runcate

sion over the entire disjunct range of these groups is badly needed.

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