

THE GENUS MELIANTHUS.

By E. P. PHILLIPS, M.A., D.Sc., and JOAN HOFMEYR.

THE genus *Melianthus* contains at least one species (*M. major*) which we know is poisonous to stock. Proof of this has been furnished in the case of *Melianthus major* by Dr. H. H. Curson, M.R.C.V.S., of the Division of Veterinary Education and Research. Regarding the other species which occur in South Africa, we know very little. The species *M. comosus* has always been regarded as a poisonous plant, but no chemical work has been done on the genus, and according to Marloth, nothing is known about their chemical ingredients. Smith states that *M. comosus* is an antidote against snake-bite, and Marloth states that it "is said to yield a black, but otherwise tasty and harmless, honey."

The genus only contains six species, all confined to South Africa, and with the prospect that some investigator will take up the chemical investigation of the species, it was thought advisable to clearly define the species and map out their distribution as far as the available material allows. At the same time, this account of *Melianthus* partially completes the description of the family *Melianthaceae* as far as the South African species are concerned. (See *Bothalia*, Vol. I, pt. 1, for the genus *Bersama*.)

The genus was founded by Linneaus in 1735, and was based on the species *major* and *minor*. Sonder (*Fl. Cap.*, Vol. I) describes three other species, and in 1896 Bolus described a very distinct species from the Drakensbergen. Kuntze described a plant from the Drakensbergen as *M. insignis*, but a careful examination of specimens reveals no difference between this and *M. dregeanus*, except the larger flowers. Kuntze's species must, therefore, be sunk to a variety of *M. dregeanus*.

The six species enumerated below fall into two very well-defined groups, (1) those with whorled flowers on the peduncle and (2) those with solitary flowers at each node on the peduncle. The peculiar nectaries at the base of the calyx furnish well-defined diagnostic characters for the grouping of the specimens into species. In some the nectary is adnate to and lines the concavity formed by the two lateral sepals, while in others the sides of the nectary are free from the lateral sepals. This character was found useful in separating the two species *M. comosus* and *M. dregeanus*, which otherwise look so alike that they were confused in most herbaria. The fruit character given by Sonder as a specific difference, while it holds good, is not often seen in herbarium specimens.

The distribution of the species appears to be well marked, and as far as the available records go, the species do not appear to intermingle to any great extent. *M. comosus* is found all over the Karroo region. *M. dregeanus*, from Port Elizabeth northwards along a strip parallel with the coast until it reaches Natal; the variety *insignis* follows the Drakensbergen from Natal up to Barberton in the Transvaal. *M. villosus* is confined to the north-eastern portions of the Free State and *M. pectinatus* has not been recorded out of Namaqualand.

We are indebted to the Curators of the herbaria at the Transvaal, Albany, and South African Museums for the loan of material.

KEY TO SPECIES.

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| 1. Racemes with a single flower at each node..... | 2. |
| Racemes with 2-4 flowers at each node..... | 3. |
| 2. Length of the nectary equalling the width of the lateral sepals and wholly adnate to the sepals at their base and with them forming a cup; petals shorter than the odd sepal..... | 1. <i>dregeana</i> , Sond. |
| Length of the nectary less than the width of the lateral sepals and adnate to them by its base only with the free portion forming a cup; petals equalling the odd sepal..... | 2. <i>comosus</i> , Vahl. |
| 3. Petals longer than the sepals; leaves glabrous above, tomentose beneath..... | 4. |
| Petals shorter than the sepals; leaves quite glabrous or hairy on both surfaces..... | 5. |
| 4. Ovary and fruit glabrous..... | 3. <i>pectinatus</i> , Harv. |
| Ovary and fruit densely hirsute..... | 4. <i>minor</i> , Linn. |
| 5. Leaves glabrous and glaucous..... | 5. <i>major</i> , Linn. |
| Leaves hairy on both surfaces..... | 6. <i>villosus</i> , Bolus. |

1. *M. dregeana*, Sond.

A sub-woody shrub up to 2 m. high. *Branchlets* leafy at the ends. *Leaves* pinnate, 6-15 cm. long; rhachis winged; leaflets in 3-5 pairs, 2.5-6 cm. long, 0.7-2 cm. broad, elliptic, acute, with the margins deeply toothed with ovate acute teeth, and with the midrib prominent beneath, stellately hairy above, albo-tomentose beneath. *Stipules* 1.5-2 cm. long, narrowly ovate, tapering to a long fine point, clasping the stem at the base, thinly canescent. *Inflorescence* a pendulous raceme, 4-7 cm. long, bearing flowers for almost the whole of its length; peduncle about 1-5 mm. in diameter, albo-tomentose or densely pilose. *Flowers* solitary at the nodes of the peduncle, brick-red, with a maroon blotch at the base. *Bracts* 1.5-2 cm. long, ovate, acuminate, cordate at the base, mostly tomentose, sometimes pilose. *Pedicels* 1-1.8 cm. long, not much elongated in the fruiting stage. *Calyx* pubescent within and without; odd sepal 1.8 cm. long, 0.3 cm. broad at the base, lanceolate, acute, not saccate nor spurred; lateral sepals 1.5 cm. long, 0.2 cm. broad at the base, oblong, falcate, attenuated into a long point; upper sepals 2.3 cm. long, 1.3 cm. broad at the base, obliquely ovate-oblong, suddenly contracted at the apex into a short point, gibbous at the base. *Petals* 0.8-1 cm. long, 2 mm. broad; lamina spatulate, membranous, veined, glabrous; claw glandular and pilose on the inner surface, with woolly margins. *Nectary* equalling the width of the lateral sepals and wholly adnate to them at their base and with them forming a cup; end of nectary away from the stamens, with 3 or 4 teeth which are free from the lateral sepals. *Ovary* 4-angled, canescent, with the ovules in 2 rows; style persistent, pilose on the lower half. *Capsule* coriaceous, 6-7 mm. in diameter, depressed globose, obtusely 4-angled, densely tomentose, opening at the apex. *Seeds* 3 mm. in diameter, globose, black, shining, glabrous. *Fl. Cap.*, vol. i, p. 368.

DISTRIBUTION.—Albany Division: Grahamstown, *MacOwan* 264, and in *Natal Govt. Herb.* 725; Coldspring, *Glen* in *Natal Herb.* 6347; *Barber* in *Herb. Albany Museum*. Fort Beaufort Division: Hogsback Plateau, *Stayner* 9. Stockenstrom Division: Kalkberg, *Scully* 158, *Sole* 402. Stutterheim Division: Stutterheim, *Rogers* 12741. Queenstown Division: Bongolo Nek, *Galpin* 7967. East London Division: Fort Jackson, *Rattray* 817. Komgha Division: *Flanagan* 288; British Kaffraria, *Cooper* 106. Griqualand East: Cedarville, *Bander* 95. Without precise locality: *Atherstone* in *Herb. Albany Museum*.

Var. *insignis*, Phill. and Hofmeyr.

Similar to the species, but larger and densely pilose in all parts. *Leaves* 10-24 cm. long. *Stipules* 3-4 cm. long. *Leaflets* in 5-6 pairs, 4-8 cm. long, 1.5-2.8 cm. broad.

Inflorescence 4–7 cm. long, up to 4 cm. in diameter. *Bracts* 2.5–4 cm. long. *Pedicels* 2 cm. long. *Odd sepal* 3 cm. long, 7 mm. broad at the base; lateral sepals 2.5 cm. long, 3 mm. broad, not attenuated into a fine point; upper sepals 4 cm. long, 1.8 cm. broad at the base. *M. insignis*, Kuntze, *Rev. Gen.* iii, 2, p. 43.

DISTRIBUTION.—NATAL: At Altemooi, on the Drakensbergen, *Thode* in *Natal Herb.* 16466, and in *National Herb.* 2897. TRANSVAAL.—Ermelo Division: Goede Hoop, *Pott* 4938, and in *National Herb.* 2898. Wakkerstroom Division: Wakkerstroom, *Van Dam* in *Herb. Transvaal Mus.* 22207.

2. *M. comosus*, Vahl.

A shrub up to 1.5 m. or more high. *Leaves* pinnate in the uppermost three-quarters, 6–16 cm. long; rachis winged; leaflets in 2.5 pairs, 3–5 cm. long, 0.5–2 cm. broad, elliptic, acute, with the margins deeply and coarsely toothed with triangular acuminate acute teeth, and with the midrib prominent beneath, thinly stellately hairy above, canescent beneath. *Inflorescence* a pendulous raceme, bearing flowers almost the whole length; peduncle about 1 mm. in diameter, hirsute. *Flowers* solitary at the nodes on the peduncle, dark red. *Bracts* 1–1.5 cm. long, broadly ovate, acuminate, cordate at the base, canescent. *Pedicels* 7 mm. long, elongating in the fruit. *Calyx* canescent without and within; odd sepal 1.5 cm. long, 3 mm. broad, ovate-lanceolate, acute, not gibbous; lateral sepals 1.5 cm. long, 2 mm. broad at the base, narrowly lanceolate, slightly falcate, acuminate; upper sepals 2 cm. long, 1.2 cm. broad at the base, obliquely ovate, suddenly contracted to a short point at the apex, gibbous at the base. *Petals* 1.6 cm. long; lamina spathulate, membranous, veined, glabrous; claw pilose and glandular on the inner face of the upper portion, with woolly margins. *Nectary* joined to the lateral sepals at the base only, with the sides free, much shorter than the basal breadth of the lateral sepals. *Ovary* deeply 4-lobed, with the ovules in 2 rows, canescent; style persistent, sparsely pilose. *Capsule* membranous, 3–5 cm. long, 4-winged, with the valves compressed and opening at the apex, canescent. *Seeds* 3–4 mm. in diameter, sub-globose, black and shining. *Fl. Cap. vol. i*, p. 367.

DISTRIBUTION.—South-West Africa, *Dinter* 3520; Draai Kraal, *Pearson* 4995. Worcester Division: Cogman's Kloof, *Michell* 20 and in *National Herb.* 2893. Uitenhage Division: Philippstown, *E. and Z.* 777. Port Elizabeth Division: Hankey, *Paterson* in *Herb. Transvaal Mus.* 25698. Queenstown Division: Klaas Smits River, *Galpin* 2518. Calvinia Division: *Johanssen* in *Herb. S.Afr. Mus.* 4423. Ceres Division: Onder Bokkeveld, *Schlechter* 10933; Worcester Division: *Foley* 77, and in *National Herb.* 2895. Somerset East Division: Little Fish River, *MacOwan* in *Herb. Albany Mus.* Graaff-Reinet Division: Roodebloom, near Graaff-Reinet, *Bolus* 497. Murraysburg Division: *Tyson* 318. Middelburg Division: Culmstock, *Galpin* 5584; Naauwpoort, *Rogers* 12075. Colesberg Division: *Zeyher*; *Rogers* 12078 and in *National Herb.* 2894; Britstown, *Page* in *Bolus Herb.* 14368. Aliwal North Division: Elands Hoek, *F. Bolus* 118. Bethlehem Division: Bethlehem, *Potgieter* 71 and in *National Herb.* 2896. Philippolis Division: Philippolis, *Marloth* 1917.

3. *M. pectinatus*, Harv.

A shrub. *Leaves* pinnate for almost their whole length, 6–16 cm. long; rachis winged; leaflets in 6–11 pairs, 2–5 cm. long, 1–7 mm. broad, varying from linear to oblong and from lanceolate to elliptic, obtuse, with the margins reflexed and either entire or coarsely and shallowly toothed, glabrous above, tomentose beneath. *Stipules* 8 mm. long, linear, tapering to an acute apex, not amplexicaul, thinly tomentose. *Inflorescence* an erect raceme, 10–16 cm. long, bearing flowers in the upper portion; peduncle 2 mm. in diameter, glabrous. *Flowers* in whorls of 2–4 on the peduncle. *Bracts* 1 cm. long, ovate, acuminate, thinly tomentose. *Pedicels* 1 cm. long, elongating in the fruit. *Calyx* green, varying from almost glabrous to thinly pubescent on both surfaces; odd sepal 1 cm. long, 1 cm. broad, broadly-ovate, acute, gibbous at the base, lobed on either side at the middle; lateral sepals 1.2 cm.

long, narrowly lanceolate, falcate; upper sepals 1.5 cm. long, 3 mm. broad, obliquely oblong, acute, slightly gibbous. *Petals* 2–3 cm. long; lamina elliptic, acuminate, membranous, veined, glabrous; claw densely hirsute on the margins, otherwise glabrous. *Nectary* horseshoe-shaped, joined to the odd sepal at its base, with the sides free. *Ovary* deeply 4-lobed, glabrous, with the ovules in 2 rows; style persistent, glabrous. *Capsule* 1 cm. long, membranous, 4-winged, opening at the apex, glabrous. *Fl. Cap.*, vol. i, *addenda and corrigenda*, p. 21. *M. Trimenianus*, Hook. in *Trimen. Journ. Bot. N.S.*, vol. ii, p. 353, t. 138; *Bot. Mag.* 6557.

DISTRIBUTION.—Namaqualand Minor: Rietkloof, *Schlechter* 11180; Klipfontein, *Bolus* 9485, *Scully* in *Herb. Norm. Austro. Afric.* 1122.

4. *M. minor*, Linn.

A small shrub. *Leaves* 6–13 cm. long, divided in the uppermost two-thirds; rachis winged; leaflets in 4–6 pairs, 2.5–5.5 cm. long, 0.5–1.8 cm. broad, lanceolate to elliptic, acute, with the margins toothed with acute teeth, and with the mid-rib prominent beneath, glabrous above, albo-tomentose beneath. *Stipules* 8 mm. long, narrow-lanceolate, joined to the base of the petiole, thinly canescent. *Inflorescence* an erect raceme 14–25 cm. long bearing flowers in the upper part; peduncle cylindrical, about 3 mm. in diameter, canescent. *Flowers* in whorls of 2–4, dull red. *Bracts* 1.5–2 cm. long, lanceolate, narrowed into a long subulate point, canescent. *Pedicels* 1 cm. long, elongating in fruit. *Calyx* canescent without and within; odd sepal 1 cm. long, 5 mm. broad, ovate, acuminate, sometimes lobed on either side about the middle, gibbous; lateral sepals 1.2 cm. long, 2 mm. broad at the base, lanceolate-linear, very acute; upper sepals 1.8 cm. long, 8 mm. broad, obliquely ovate, tapering to an acute point. *Petals* up to 2 cm. long; lamina lanceolate, tapering to an acute point, membranous, veined, glabrous, with 2 narrow lobes near the base; claw pubescent and glandular on the inner surface, woolly on the margins. *Nectary* horseshoe-shaped, attached only at the base to the sepals with the walls free, sometimes with a small process on either side nearest the stamens. *Ovary* 4-angled, with the ovules in 2 rows, densely tomentose; style persistent, pubescent below. *Capsule* toughly membranous, 2 cm. long, sub-globose, 4-angled, tomentose. *Fl. Cap.*, vol. i, p. 368.

DISTRIBUTION.—Namaroup, Khamisberg, *Pearson* 6596. Van Rhynsdorp Division: Windhoek, *Schlechter* 8071; Olifants River, *Zeyher* in *Cape Govt. Herb.* Clanwilliam Division: Brackdam, *Schlechter* 8071, 11127. Malmesbury Division: Hopefield, *Bolus* 12645. Calvinia Division: *Leipoldt* in *Herb. Bolus.* Malmesbury Division: Between Hopefield and Saldanha Bay, *Bolus* 12645.

5. *M. major*, Linn.

A flexuous shrub up to 1.5 m. high. *Leaves* divided in the upper half or two-thirds; lower leaves 30–45 cm. long, upper leaves from 12 cm. long and upwards; rachis winged; leaflets in 2–6 pairs, 9–18 cm. long, 5–7 cm. broad, oblong, acute, slightly narrowed at the base, with the margins deeply and coarsely toothed with triangular acute teeth, and with the mid-rib prominent beneath, glabrous, glaucous. *Stipules* 7–11 cm. long, elliptic-ovate, apiculate or acuminate, folding the leaf-petiole and amplexicaul at the base. *Inflorescence* a dense erect raceme, 30–38 cm. long, bearing flowers in the upper portion; peduncle cylindrical, about 1 cm. in diameter, glabrous. *Flowers* brownish-red, in whorls of 2–4. *Bracts* 1.5–2.5 cm. long, ovate, sub-acuminate, glabrous. *Pedicels* 1.5–2 cm. long, elongating in the fruit. *Calyx* 5-parted almost to the base, pubescent without and within; odd sepal 1.4 cm. long, 1.4 cm. broad at the base, broadly ovate, suddenly contracted into an obtuse point, saccate or very shortly spurred; lateral sepals 2.5 cm. long, 7 mm. broad, obliquely ovate, narrowing upwards into an obtuse apex; upper sepals 3 cm. long, 1 cm. broad, obliquely ovate, narrowing upwards into an obtuse point, faintly gibbous at the base. *Petals* 1.5 cm. long, 2.5 mm. broad; lamina elliptic, membranous, veined, sparsely pilose; claw glabrous below, pubescent and glandular above on the inner face,

with woolly margins ; a fifth stamen sometimes present. *Nectary* lining the base of the odd sepal, with the sides free, erect, and strongly compressed, toothed at the end farthest from the stamens. *Ovary* deeply 4-lobed, with the ovules in 2 rows, glabrous ; style persistent, glabrous. *Capsule* membranous, 3-4 cm. long, deeply 4-lobed, valves sharply keeled, opening at the apex, glabrous. *Seeds* globose, 4.5 mm. in diameter, black, shining, glabrous. *Fl. Cap.*, vol. 1, p. 367.

DISTRIBUTION.—Van Rhynsdorp Division : Gift Berg, *Phillips* in *Percy Sladen Memorial Expedition* 7630, and in *Herb. S. Afric. Mus.* 3271. Cape Division : Hout Bay, *Pappe*. Caledon Division : Houwhoek, *Elbrecht* in *Herb. Transvaal Mus.* 19014 ; Hottentot Hollands Mountains, *Zeyher*. Cape Division : Houts Bay, *Woolly Dod* 1520. Riversdale Division : near Heidelberg, *Galpin* 3798. Humansdorp Division : Clarkson, *Galpin* 3798. Somerset East : Boschberg, *MacOwan* 1560. Graaff-Reinet Division : Sneeuwberg, *Bolus* 1959. Specimens cultivated at Zomba, Nyasaland, *McClounie* in *Natal Govt. Herb.* 11247.

6. *M. villosus*, Bolus.

A shrub, stellately pubescent in all parts. *Leaves* divided in the uppermost three-quarters, 14-26 cm. long ; upper leaves shorter than the lower ; rachis winged ; leaflets in 3-6 pairs, 4-14 cm. long, 2-4 cm. broad, elliptic-ovate, acute, with the margins deeply and coarsely toothed with triangular acuminate acute teeth, and with the mid-rib prominent beneath, sparsely stellately hairy above, densely stellately hairy beneath. *Stipules* 2-2.5 cm. long, obliquely ovate-lanceolate, tapering to an acute point. *Inflorescence* an erect raceme, 30-45 cm. long, bearing flowers in the upper part ; peduncle about 7 mm. in diameter. *Flowers* in whorls of 2-4. *Bracts* 2 cm. long, ovate, acuminate. *Pedicels* 2 cm. long, elongating in the fruit. *Calyx* pubescent within and without ; odd sepal up to 2 cm. long, 1 cm. broad, ovate, acuminate, sometimes lobed on either side about the middle, gibbous ; lateral sepals 1.8 cm. long, narrowly lanceolate, falcate, acute ; upper sepals 3 cm. long, 1.2 cm. broad, obliquely oblong, obtuse, not gibbous. *Petals* 1.6 cm. long ; lamina elliptic, membranous, not distinctly veined, pubescent ; claw densely hirsute and glandular, with woolly margins. *Nectary* joined to the odd sepal only at its base, with 2 free lobes, mucated between the lobes ; lobes oblong, obtuse, somewhat unequal ; shorter lobe acute ; longer lobe obtuse. *Ovary* 4-lobed, with the ovules in 1 row, densely hirsute ; style pubescent at the base. *Journ. Bot.* 1896, 17.

DISTRIBUTION.—Natal : Weenen, *Wood* 4376 ; Giants Castle, *Symons* 1722 ; Elands River Valley, near the Mont-aux-Sources, *Flanagan* 2004.

A specimen collected by Colonel J. Rose in the northern parts of South-West Africa (*Herb. Bolus* 15462) is an undescribed species, but the material is too poor for drawing up a description.