

FSA contributions 14: Cannabaceae

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A family of two genera native to temperate parts of the Northern Hemisphere, one naturalised in Africa.

1973000 CANNABIS

Cannabis L., *Species plantarum* 1: 1027 (1753); L.: 453 (1754); E.Phillips: 248 (1951), M.D.Hend. & J.G.Anderson: 70 (1966); N.G.Mill.: 188 (1970); J.H.Ross: 50 (1972); R.A.Dyer: 35 (1975); Stearn: 1, t. 1–7 (1970); Verdc.: 1 (1975); E.Small & Cronquist: 405 (1976); Emboden: 304 (1974); Emboden: 110 (1977); L.C.Anderson: 61 (1980); Wilmot-Dear: 10 (1991); Kubitzki: 204 (1993). Type: *C. sativa* L.

Erect, tall, annual aromatic herbs, dioecious, rarely monoecious; most parts of plant with minute adpressed swollen-based hairs. Male and female plants dimorphic; males taller and more slender with longer narrower leaflets, inflorescence sparsely leafy, plant dying soon after flowering; females shorter, more robust, inflorescence densely leafy, plant living several months after pollination. *Leaves* alternate (opposite at stem base), petiolate, palmately compound or lobed; indumentum a mixture of short robust bulbous-based hairs and longer finer hairs; leaflets uneven in size, serrate; stipules lateral, linear, acute, persistent. *Inflorescences* axillary. *Male inflorescences* much-branched, lax, cymose panicles, bristly-hairy, exceeding leaves but bearing few scattered leaves; flowers small, pedicellate, regular. *Perianth* uniseriate, lobes 5, free, imbricate, greenish or whitish, boat-shaped, spreading or reflexed. *Stamens* 5, opposite perianth lobes, erect in bud, pendulous at maturity, dehiscence longitudinal, basipetal; filaments short; pistillode absent. *Female inflorescences* short, compact, not exceeding leaves, few-flowered, flowers in pairs, each with stipule-like bract and small green organ ('bracteole' or 'calyx') completely enveloping ovary and loosely enclosing mature fruit, forming basally swollen tubular sheath, acuminate at apex and covered with fine hairs and short-stalked or sessile resinous glands. *Perianth* thin, undivided, tightly enveloping ovary and mature fruit (often reduced or absent in cultivated forms), marbled with light and dark areas. *Ovary* superior, sessile, \pm globose, 1-locular with 1 pendulous anatropous ovule. *Style* short; stigma branches 2, long, filiform, densely pubescent, caducous. *Fruit* a globular to ovoid achene tightly covered by thin crustaceous perianth through which reticulate venation of fruit surface beneath is visible; achene with pale vein-reticulation patterning surface which is dark but somewhat translucent in outer layers. *Seed* 1, endosperm sparse, fleshy, oily; embryo strongly curved, cotyledons fleshy.

Easily identified by the light and dark patterning of the perianth layer (where this is present) surrounding the fruit, the reticulate venation of the fruit which, due to the translucence of the surface layers above and below, appears as if 'suspended in shallow water', and the mixture of short robust bulbous-based hairs and longer finer hairs.

A genus which has been treated variously as comprising three species (Emboden 1974; Anderson 1980), or one very variable species in which four forms can be recognised at varietal or subspecific level (Small & Cronquist 1976). Since female plants show a whole range of forms between extremes and since it is difficult or impossible to assign males to the various forms described, the genus seems best considered as comprising one species whose inherent variation has, by artificial selection for production of fibre, oil or intoxicating resin, followed by naturalisation, crossbreeding and recombination of characters, given rise to a reticulate pattern of variation where, primarily in the female, several extreme forms exist, but where a continuous range of intermediates is also present and where variation in males is far less extreme.

Used for fibre (hemp), oil and intoxicant resin.

Cannabis sativa L. *Species plantarum* 1: 1027 (1753); L.: 453 (1754); Engl.: 162 (1895); Engl.: 44 (1898); Hiern: 994 (1900); Rendle: 16 (1916); Burt Davy: 445 (1932); Hauman: 176 (1948); Williams: 169 (1949); Adamson: 316 (1950); Andrews: 280 (1952); Trease: 216, t. 75 (1952); Cufod.: 17 (1953); Keay: 623 (1958); Schreiber: 290, t. 136, 137, fig. 88/1 (1958); Purseglove: 40, t. 4 (1968); Verdc. & Trump: 96 (1969); Jacot Guill.: 162 (1971); Stearn: 325 (1974); Verdc.: 1 (1975); Wilmot-Dear: 11 (1991). Type: female specimen in Hort. Cliff: 457, Cannabis no. 1, B [BM, lecto. (Stearn 1974)].

Herb, simple or branched, with robust taproot; stems angular, often with hollow internodes, up to \pm 2 m. *Leaves* 3–7(–11)-foliolate; leaflets to 120 \times 12 mm, sessile, apex acute or \pm mucronate, base cuneate, margin serrate-biserrate; penninerved, midrib prominent beneath, membranous-chartaceous, shortly coarse-hairy and yellow-glandular on both surfaces; petiole 20–60 mm; stipule up to 14 mm. *Inflorescences*: rarely both sexes on 1 plant and then 1 predominating. *Male inflorescences* numerous, few- to over 20-flowered, up to 200(–300) mm long; bracts short, up to 15 mm; pedicels up to 7 mm; perianth lobes 3–4 \times 1 mm, adpressed-pubescent outside; anthers 3–4 mm; filaments 0.3–1.0 mm. *Female inflorescence* few-flowered, bracts often shorter than in male, enveloping bracteole 2–8 mm long, green. *Ovary* \pm 1 mm diam.; stigmatic branches (1–)2–5 mm long. *Fruit* 3–4 \times 2.0–3.5 mm, surface uniformly coloured, pale with prominent reticulate pattern of venation or, where persis-

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FIGURE 1.—*Cannabis sativa*. A–G, var. *sativa*: A, part of male plant, $\times 0.8$; B, part of female plant with flowers and fruit, $\times 0.8$; C, male flower, 1 tepal and 2 stamens removed, $\times 9$; D, female flower, $\times 9$; E, achene with enveloping bracteole, $\times 4.6$; F, detail of bracteole surface $\times 17.5$; G, achene (perianth absent), $\times 4.6$. H, var. *indica*: part of female plant with flowers and fruit, $\times 0.8$. A, C, E–G, Leendertz 735; B, D, Viljoen 1629. Artist: Eleanor Catherine.

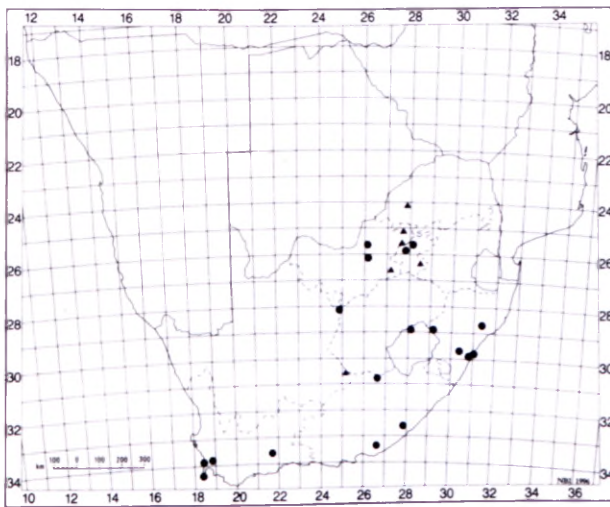


FIGURE 2.—Distribution of *Cannabis sativa*: naturalised, ●, cultivated, ▲.

tent perianth present, shiny, brownish or greyish, mottled with light and dark marbled pattern, venation visible beneath. Figure 1.

Found in Northern Province, North-West, Gauteng, KwaZulu-Natal, Lesotho, Free State and Western and Eastern Cape (especially southern parts) (Figure 2); naturalised as a weed of old cultivations; also widely cultivated for intoxicant resin and for fibre and seed-oil.

Known by the vernacular names of 'dagga' and 'hashish'.

A native of central Asia, widely cultivated and naturalised throughout the world.

Note: in the following key to varieties, measurements of plant height are intended merely as an approximate guide, since this character can vary greatly within each variety depending on environmental conditions, and useful comparison can be made only between plants in any one habitat.

- 1a Fruit small, usually less than 3.8 mm, base constricted, perianth persistent, giving mottled marble appearance with reticulation visible beneath, female plant small, up to ± 0.6 m, unbranched, leaves small; leaflets 3–5(–7), usually elliptic 3. *C. sativa* var. *spontanea*
- 1b Fruit large, usually over 3.8 mm, base blunt, rounded, perianth deciduous or absent, fruit surface uniformly (usually pale) coloured with prominent reticulation; female plant tall or much-branched, leaves large; leaflets 5–11, oblanceolate or lanceolate.
 - 2a Female plant tall (up to ± 2 m), laxly and sparsely branched; internodes long, hollow; leaflets 5–7, lanceolate 1. *C. sativa* var. *sativa*
 - 2b Female plant shorter (± 1 m) with many crowded branches giving compact congested appearance; internodes short, solid, leaflets usually 7–11, oblanceolate 2. *C. sativa* var. *indica*

1. var. **sativa**

Plant (especially female) tall, laxly and rather sparsely branched; internodes long, ± hollow. *Leaves* large; leaflets 5–7, lanceolate, length 8–11 times width. *Perianth* poorly developed or readily deciduous from

mature fruit surface; fruit surface when visible uniformly coloured, reticulate-patterned. *Fruit* at maturity usually longer than 3.8 mm with blunt base, ± persistent on plant. Figure 1A–G.

Plants modified by cultivation for 'hemp' fibre and seed oil.

Vouchers: *Codd* 8506 (K); *Leendertz* (3192) 9451 (PRE); *Moss* 5199 (J); *Viljoen* 1629 (PRE). Intermediate with var. *indica*: *Phillips* 22378 (J); *Wood* 3840 (BOL).

2. var. **indica** (*Lam.*) *Wehmer*, *Die Pflanzenstoffe*: 157 (1911) but see note in *Small & Cronquist* (1976). Type: India, *Sonnerat* (P, syn.).

C. indica Lam.: 687 (1785).

Plant (especially female) fairly short, robust with many short crowded branches giving congested appearance; internodes short, solid. *Leaves* large; leaflets (5–)7–11(–13), oblanceolate, length 5 or 6 times width. *Perianth* and *fruit* as in var. *sativa*. Figure 1H.

Plants modified by cultivation for intoxicant resin.

Vouchers: *Naude s.n.*, 23 April 1968; *Oates s.n.* comm. April-1878 (K); confiscated by Police, comm. 16 Jan. 1934; *Molyneux s.n.*, 1880 (BM).

3. var. **spontanea** *Vavilov* in *Trudy Po Prikladnoi Botanike* 1 Seletsii 13 (suppl. 23): 148 (1922). Type: USSR, grown at Kamenna experimental station in 1925 from seed collected near Saratov, 1921, *Andropova* 121 (WIR, lecto.).

C. ruderalis Janischevsky: 14 (1924). Type: USSR, near Saratov, *Janischevsky s.n.* (LE, lecto.).

Plant (especially female), little branched if at all; internodes short, solid. *Leaves* small; leaflets 3–5(–7), usually elliptic, length 5 or 6 times width. *Perianth* fully developed and persistent around fruit, giving distinctive marbled appearance. *Fruit* at maturity usually less than 3.8 mm, with narrowed, slightly elongated base, readily disarticulating from plant.

Plants either little-modified by selective cultivation or de-domesticated by subsequent naturalisation and cross-breeding of cultivated forms. No material conforming to this taxon has been seen, but only intermediates resembling vars. *sativa* and *indica* in habit and with large seeds but with persistent perianth.

Vouchers: intermediate with var. *sativa*: *FGC* 2151 (J). Intermediate with var. *sativa* and var. *indica*: *Wood* 3849 (K).

A further form has been recognised by *Small & Cronquist* (1976) as *C. sativa* subsp. *indica* var. *kafiristanica* (*Vavilov*) *Small & Cronquist* [possibly also corresponding to the form '*C. sativa* L., small seeded' of *Anderson* (1980)], intermediate between vars. *sativa* and *spontanea* in habit and with seed characters of var. *spontanea* but with the high intoxicant resin content of var. *indica*. Whether or not such a form can be separated mor-

phologically, no specimens seen from southern Africa seem referable to this taxon.

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