



CYMBOPOGON REFRACTUS Barbed-wire Grass

A tufted, erect perennial. *Culms* up to 1.5 m at maturity, rigid, branching at the nodes, smooth, hairless. *Nodes* purple, hairless. *Leaves* both basal and along the culms. *Leaf sheaths* rounded, loose, often persisting at the base of the plant, slightly rough downwards, without hairs. *Ligule* 0.5 mm, membranous. *Leaf blades* narrow and pointed, up to 30 cm long and 1.5 mm wide, downwardly rough to the touch, becoming curled at maturity.

Inflorescence a narrow panicle with 1 to several erect branches, each terminating in paired racemes, which are partly enclosed by spathes, these becoming reflexed to give the "barbed-wire" appearance, which has given rise to the grass's common name; the immature inflorescence is green or blue-green, but becomes red-brown at maturity, often covered with a scurfy wax, hairless, except for a small tuft of short hairs at the base of the sessile spikelet and on the knee of the reflexed axils at the base of the racemes; each raceme contains 2–6 spikelet pairs, of which the lowermost pair is sterile, breaking up at maturity into the separate joints with the spikelets falling entire. *Spikelets* (S_1 , S_2) dissimilar, in pairs adpressed to each other, the lower spikelet sessile and the upper pedicellate. *Florets* 2, in the sessile spikelet, the lower floret neuter and reduced to a lemma, the upper floret bisexual; in the pedicellate spikelet, both florets neuter and reduced. *Sessile spikelet* (S_1) 5.5 mm long, fertile. *Glumes* (G_1 , G_2) about equal; the lower glume (G_1) acute, 5.5 mm long, 7–9-nerved, 2-keeled; the upper (G_2) acute, 1-keeled, narrower, 5-nerved. *Lemma* (L_1) of the lower sterile floret pointed, thin and translucent, with a delicate translucent fringe around the upper part, 5 mm long, 3-nerved with the lateral nerves faint. *Palea* absent. *Lemma* (L_2) of the upper fertile floret about the same length as L_1 , narrower, pointed, faintly 2-keeled, also with an apical translucent fringe. *Palea* absent. *Anthers* 3, 1.5 mm long. *Pedicellate spikelet* (S_2) shorter (5 mm) and narrower than the sessile one and reduced to the glumes; sterile. *Glumes* (G_1 , G_2) unequal; the lower glume (G_1) about 11-nerved, somewhat thickened; the upper (G_2) $\frac{1}{2}$ to $\frac{2}{3}$ the length of G_1 , 3-nerved, the margin with fine hairs. *Lemmas* and *paleas* absent.

This grass is widespread in the grassy forest and grassy woodland region of eastern Queensland, especially on the lighter soils of fairly low fertility. It is grazed by stock, but does not appear to be a highly productive grass. When crushed, the leaves give off a strong spicy or gingerish odour.

REFERENCES

- Bailey (1902),¹ pp. 1865–66 (as *Andropogon* spp.); Blake (1944b),² pp. 55–59; Gardner (1952),³ pp. 337–40; Vickery (1961),⁴ pp. 51–55; Blake (1969a),⁵ pp. 69–73; Burbidge and Gray (1970),⁶ p. 72; Lazarides (1970),⁷ p. 97; Willis (1970),⁸ pp. 211–12; Beadle *et al.* (1972),⁹ p. 676; Blake (1974),¹⁰ pp. 29–61; Black (1978),¹¹ pp. 241–42; Jessop (1981),¹² pp. 489–90.

KEY TO SPECIES

1. Spikelets almost completely covered with dense woolly hairs. 2
Spikelets not covered with dense woolly hairs. 3
2. Racemes reflexing at maturity. Persistent leaf sheaths not rolled back (silky heads) *C. obtectus*^{2,4,5,7,8,9,10,11,12}
Racemes erect. Persistent leaf sheaths flat and distinctly recurved or rolled back (silky oilgrass) *C. bombycinus*^{1,2,3,10,12}
3. Spikelets mostly awnless; joints and pedicels hairless (barbed-wire grass) *C. refractus*^{1,2,4,6,8,9,10}
Spikelets awned; joints and pedicels hairy. 4
4. Racemes reflexed at maturity; joints and pedicels hairy on margins only, hairs less than 3 mm long. *C. queenslandicus*¹⁰
Racemes erect or almost so; joints and pedicels hairy on margins and back, hairs 4–5.5 mm long (scentgrass) *C. ambiguus*^{2,3,10,11,12}

