

## A Variety of *Colubrina oppositifolia* Brongn. ex Mann (Rhamnaceae) Hawaiian Plant Studies 95<sup>1</sup>

HAROLD ST. JOHN<sup>2</sup>

THE GENUS *Colubrina* is represented in the native Hawaiian flora by two species. *Colubrina asiatica* (L.) Brongn. is a shrub, pantropic in distribution, and frequent on Hawaiian shores from Kauai to Mokokai. *Colubrina oppositifolia* Brongn. ex Mann is an upland species, a tree up to 12 m tall and 3 dm in diameter, and with opposite instead of alternate leaves. It is endemic to these islands, and occurs on Hawaii and Oahu in xerophytic forests. The author now documents differences between the trees of the two islands, and presents the Oahu one as a separate variety.

### RHAMNACEAE

*Colubrina oppositifolia* Brongn. ex Mann,  
var. *Obatae*, var. nov.

NOM. VERN.: "kauila"

Figure 1

DIAGNOSIS HOLOTYPE: Arbor 5 m alta, trunco 18 cm diametro pluriramoso, ramulis 4–6 mm diametro, nodis incrassatis, internodis glabris, cicatricibus foliorum 3–3.5 mm latis transverse ellipticis pallidis paulum elevatis, cicatricibus fasciculorum fere circulatatis, foliis oppositis glabris, stipulis 10–14 mm longis viridibus lanceolatis navicularibus deciduis, petiolis 2–3.5 cm longis rubris tarde viridibus, laminis 5–14 cm longis 2.5–7 cm latis lanceolati-ovatis subacuminatis basi subcordata chartaceis supra obscure viridibus lucidis infra pallidiore viridibus et midnervo rubro tarde viridi nervis secundariis in 5–7 jugis curvatis adscenden-

tibus marginibus integris, inflorescentiis axillaribus glabris 2–2.5 cm longis 12–21-floriferis cymosis sed flore centrali nullo, pedunculo 8–12 mm longo glabro, floribus in serie apertis 1–2 in tempore uno, pedicellis 3–7 mm longis remote adpresse puberulis, alabastris rubris, hypanthio infundibuliformi remote adpresse puberulo, 5 lobis calycis 1.7–2 mm longis late ovatis acutis glabris intra viridibus, 5 petalis 1.8 mm longis viridibus spatulatis et in apice cucullato antheram inclusis, filamentis 1.5 mm longis crasse subulatis carnosius subviridibus, antheris 0.3 mm longis ellipsoideis, disco 2.5 mm diametro, ovario 3-loculato, stylo 0.5 mm longo et 3 stigmatibus brevibus ferrentibus.

DESCRIPTION: Tree 5–15 m tall; trunk 18–51 cm in diameter, many-branched; bark dark; branchlets 4–6 mm in diameter; nodes thickened; internodes glabrous; leaf scars 3–3.5 mm wide, transversely elliptic, pale, slightly elevated; bundle scars 3, nearly circular; leaves opposite, glabrous; stipules 10–14 mm long, green, lanceolate, navicular, deciduous; petioles 2–3.5 cm long, red, later green; blades 5–14 cm long, 2.5–7 cm wide, lance-ovate, subacuminate, the base subcordate, chartaceous, above dark shiny green, below pale green, below the midrib red, but in age turning green, the secondary veins in 5–7 pairs, curved ascending, the margin entire; inflorescences axillary, glabrous, 2–2.5 cm long, 12–21-flowered, a cyme, but lacking the central terminal flower; peduncle 8–12 mm long, glabrous, the flowers opening in series, only 1–2 at a time; pedicels 3–7 mm long, remotely appressed puberulous; buds red; hypanthium funneliform, remotely appressed puberulous; 5 calyx lobes 1.7–2 mm long, broadly ovate, acute, glabrous, green within; 5 petals 1.8 mm long, green, spatulate, enclosing the anther in its cucullate tip; filaments 1.5 mm long, thick sub-

<sup>1</sup> Manuscript received 26 August 1976.

<sup>2</sup> Bernice P. Bishop Museum, P.O. Box 19000-A, Honolulu, Hawaii 96819.

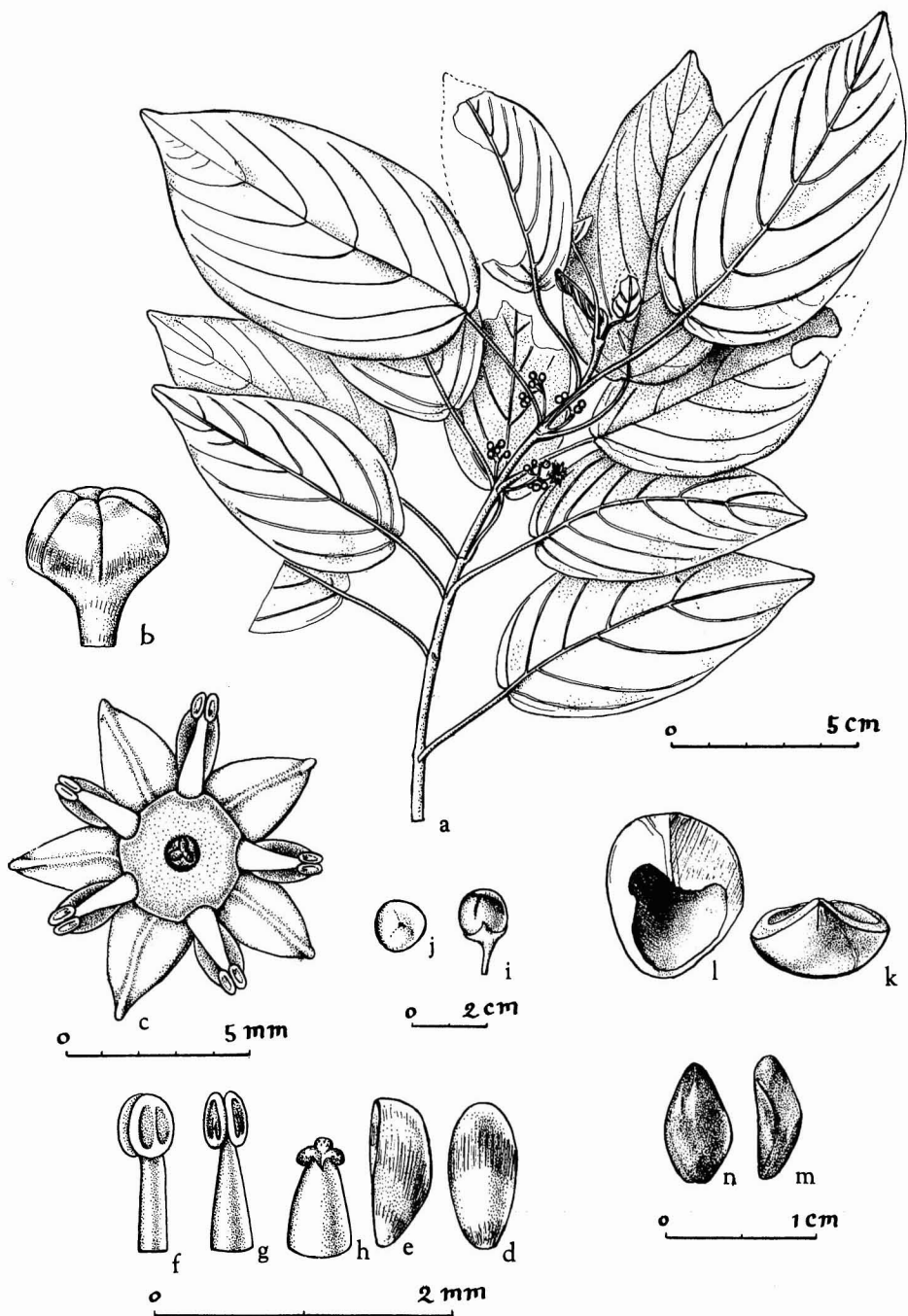


FIGURE 1. *Colubrina oppositifolia* Brongn. ex Mann, var. *Obatae* St. John, a-h from holotype; i-n from Russ, June 1932; a, habit,  $\times \frac{1}{2}$ ; b, bud,  $\times 5$ ; c, flower,  $\times 5$ ; d, e, petal,  $\times 10$ ; f, g, stamen,  $\times 10$ ; h, pistil,  $\times 20$ ; i, j, fruit,  $\times \frac{1}{2}$ ; k, l, fruit valve,  $\times 2$ ; m, n, seed,  $\times 2$ .

late, fleshy, greenish; anthers 0.3 mm long, ellipsoid; within the flower is the apical disk 2.5 mm in diameter; ovary 3-celled; style 0.5 mm long, bearing 3 short stigmas; infructescence 2–5 cm long; pedicels 9–27 mm long; hypanthium 5–6 mm long, obconic; the dry drupe 10–11 mm in diameter, subglobose, the apex rounded or very slightly retuse; locules 1-seeded; seeds 8 mm long, 5.5–6 mm wide, 3 mm thick, dark brown, shiny, ellipsoid, but with 2 flat inner faces and a sharp inner angle; hilum apical, linear, 0.5 mm long.

HOLOTYPE: Hawaiian Islands, Oahu Island, Waianae Range, east Makaleha Valley,  $\frac{1}{3}$  way up, on steep dry substrate, among *Diospyros*, *Eugenia*, *Canthium*, and *Sapindus*, and in a fairly open understory, 1,400 ft alt., 17 February 1975, John Obata 278 (BISH).

SPECIMENS EXAMINED: Hawaiian Islands, Oahu Island, all from the Waianae Mts., east side, east branch, Makaleha Valley, rare, 1,600 ft alt., 2 July 1950, O. Degener, W. Hatheway, & A. Greenwell 20,821; Mokuleia, slopes of Kaala, 26 April–16 May 1912, C. N. Forbes; west branch, east Makaleha Valley, Mokuleia, 1,400 ft alt., 30 September 1950, W. H. Hatheway 382; Honouliuli, Contour Trail, 1,500 ft alt., summer 1954, K. Korte; Makaleha, central valley, 1,200 ft alt., June 1932, G. W. Russ; and ditto, July 1932; Kamokunui (or Papaya) Gulch, Kamalanui, common in dry forested gulch, 1,700 ft alt., 17 July 1955, H. St. John 25,571.

DISCUSSION: Cultivated specimens have been collected from 1929 to 1959 in Honolulu from the Bishop Estate Nursery, the Kamehameha School Hawaiian Garden, and Diamond Head.

The specimens cited are all in the Bernice P. Bishop Museum Herbarium.

Hillebrand recognized the species *Colu-*

*brina oppositifolia* from Hawaii, and also from Kaala, on Oahu. His Kaala specimen has not been seen, as it was doubtless destroyed in Berlin. He also (1888:81) said, "Remy's specimens probably came from Kauai." However, the tree is unknown there, and there is no known basis for Hillebrand's suggestion. J. F. Rock, in his accounts of the trees of the islands, was unaware of the "kauila" occurring on Oahu. The next collector to rediscover this "kauila" on Oahu was C. N. Forbes in 1912. Subsequently, several other botanists have gathered it there, near Kaala; and in 1954 K. Korte gathered it near the Contour Trail, Honouliuli, in the southern Waianae Mts.

The related *Colubrina oppositifolia*, var. *oppositifolia* of the island of Hawaii has its pedicels and hypanthium densely puberulous; the calyx lobes sparsely puberulous, 2–3 mm long, ovate lanceolate; fruit apex retuse; and on the leaf lower surface the basal axillary glands of the secondary veins are umbonate. As lectotype for *C. oppositifolia* Brongn. ex Mann, the specimens from the island of Hawaii, J. Rémy 581 (p), is here chosen. The new var. *Obatae* has the pedicels and hypanthium remotely appressed puberulous; calyx lobes glabrous, 1.7–2 mm long, lance-ovate; fruit apex rounded (or very slightly retuse); and on the leaf lower surface the basal axillary glands of the secondary veins are from umbonate to digitate and incurved.

The new variety is named in honor of John K. Obata (1925–), science teacher at Kawanakoa School, Honolulu, and botanical explorer of our rugged mountains.

#### LITERATURE CITED

- HILLEBRAND, WILLIAM. 1888. Flora of the Hawaiian Islands. C. Winter, Heidelberg. I-XCVI, 1–673, frontispiece, 3 maps.