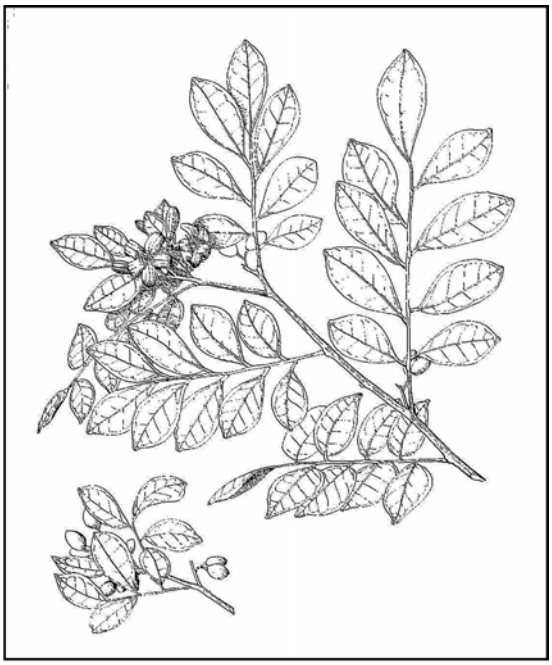
***Murraya exotica* L.** orange jasmine
RUTACEAE

Synonyms: *Murraya paniculata* (L.) Jack
Chalcas paniculata L.
Chalcas exotica (L.) Millsp.



General Description.—Orange jasmine is also known as mock orange, satin wood, honey bush, China-box, café de la India, mirto, azahar, naranjo jazmín, limonaria, and bun (Little and others 1974). It is an evergreen shrub or occasionally a small tree, usually 2 to 3 m in height but reaching 7.5 m and 13 cm in stem diameter. Older orange jasmine normally have multiple stems from the ground level. The stems are supported by taproots with lateral roots and abundant fine roots. Stem bark is gray, becoming fissured and rough. Orange jasmine branches and twigs are slender and abundant at all heights. The alternate leaves are pinnately compound with three to nine leaflets alternating on the rachis. The 1- to 5-cm, leaflets are dark-green, stiff, ovate, and smell of citrus when crushed. The shrub produces fragrant, five-petaled, white flowers borne in small clusters near the branch ends. Later, shiny, red elliptic fruits about 1 cm long develop. One or two light green seeds are embedded in the bitter, watery pulp (Liogier 1988, Little and others 1974). The seeds are tear-drop shaped, rounded or flattened on one side depending on whether there are one or two seeds per fruit.

Range.—The native range of orange jasmine includes China, India, Sri Lanka, the Andaman Islands, Myanmar, Thailand, Kampuchea, Viet Nam, Malaysia, northeastern Australia, New Caledonia, and Taiwan (Parrotta 2001). In addition, the shrub has been planted throughout the Tropics and has naturalized in many locations including Puerto Rico (author's observation). Some authors consider *M. exotica* and *M. paniculata* to be separate species (Howard 1988, Pacific Island Ecosystems at Risk 2002).

Ecology.—Orange jasmine is adapted to a wide range of conditions. Naturalized plants in Puerto Rico grow in areas receiving from about 750 mm to 1900 mm of annual precipitation. The species grows from nearly sea level to elevations of 1,300 m (Neal 1965). It grows on most well-drained soils derived from both sedimentary and igneous rocks, although it is said to favor limestone areas (Pacific Island Ecosystems at Risk 2002). Plants survive temperatures to about –4 °C (Desert-Tropicals 2002). Ornamental plants are attacked at times by white flies, scale insects, nematodes, and sooty mold (Sheehan 1975). It was noted that powdery mildew attacked the species in pruned hedges but not in free-growing unpruned plants (Pathak and others 1992). Orange jasmine is moderately intolerant of shade. Although growing well under partial shade, it produces few flowers or fruits. Escaped plants in Puerto Rico are most often seen at the edges and in the understory of dry and moist secondary forests. Seedlings do not compete well with grass or herbaceous vegetation.

Reproduction.—Orange jasmine flowers irregularly throughout the year (Little and others 1974). In Hawaii, it flowers from June to September (Neal 1965). Fruits collected from plants in Puerto Rico averaged 0.370 $\pm$ 0.012 g/fruit. Air-dried seeds from these fruits averaged 0.0568 $\pm$ 0.0012 g/seed or 17,600 seeds/kg. Sown on commercial potting mix, 65 percent germinated

between 25 and 60 days of sowing. Germination is hypogenous. Seedlings quickly develop deep root systems and grow at a moderate rate. Plants coppice vigorously after disturbance. Nursery production is by seed, cuttings (Little and others 1974), and air-layers (Woman's Club of Havana 1952).

Growth and Management.—Orange jasmine plants can live at least 15 years (author's observation). Once established as an ornamental, they need little care. The species has not yet been reported to be a weed in any area. Orange jasmine can be killed (with moderate success) with herbicides recommended for broad-leaf weeds, by girdling (Negreros-Castillo and Hall 1994), or by grubbing out the plants. The species is the preferred host of the citrus psyllid, *Diaphorina citri*, the vector for "citrus greening" disease (Pacific Island Ecosystems at Risk 2002), and is a host of Mediterranean fruit flies (Diptera: Tephritidae) (Harris and Lee 1986).

Benefits.—Orange jasmine is a popular hedge plant in the tropics. It can be used as a background plant or an accent plant. It can be pruned into animal and other shapes (topiary), pruned into tree form, grown as a potted plant (Whistler 2000), or cultivated as a bonsai (Gonzalez 2002). The sapwood is light yellow, and the heartwood is light brown and heavy, hard, fine-textured and good for small turned articles (Little and others 1974). Branches or stems 2 to 5 cm in diameter in the Indian Himalayan region were evaluated for fuelwood suitability. Results were as follows: oven-dry density 0.72, dry-weight caloric value 20.2 kj/g, ash 0.6 percent, moisture 54.7 percent, and nitrogen 0.42 percent (Negi and Todaria 1993). In the wild, orange jasmine contributes to the biodiversity, protects the soil, and furnishes food and cover for wildlife. The leaves and other tissues have both stimulant and astringent properties and are used to treat diarrhea, dysentery, cuts, joint pain, body aches (Parrotta 2001), venereal disease (Kinoshita and Firman 1996), and as an abortive (Xiao and Wang 1991). In addition to essential oils, tissues of orange jasmine contain the indole alkaloid yuehchukene (Xiao and Wang 1991) and at least eight highly oxygenated flavones (Kinoshita and Firman 1996).

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