Hibiscus tiliaceus L.

JAMES A. ALLEN
Paul Smiths College,
Paul Smiths, NY

MALVACEAE (MALLOW FAMILY)

H. tiliaceus f. *albiflorus* (Degener & Greenwell) St. John; *H. tiliaceus* f. *immaculatus* (Degener & Greenwell) St. John; *Paritium tiliaceum* (L.) Juss. ex St. Hill.; *Pariti tiliaceum* (L.) Britton. (Little and Skolmen 1989, Wagner and others 1990)

Emajagua, hau, linden hibiscus, mahoe, majagua de playa, seaside hibiscus (Little and Skolmen 1989, National Academy of Sciences 1983)

The genus *Hibiscus* includes about 200 species distributed primarily in the tropical and subtropical regions of the world. It is a highly variable genus, with relatively few characteristics in common (Wagner and others 1990). *Hibiscus tiliaceus* is one of the most widespread species in the genus, with a pantropical, mainly coastal, distribution. Whether this widespread distribution occurred primarily through natural dispersal or through human intervention is unknown. Seed capsules are well adapted for long-distance dispersal by water. However, the species has been used historically in a wide variety of ways, leading some to suggest that it was also widely distributed by early seafarers.

The fast-growing *Hibiscus tiliaceus* is a small, evergreen polymorphic tree that typically ranges from 4 to 12 m in height and 15 to 20 cm d.b.h. The tree most often has a short, crooked trunk with a broad crown of widely spreading and crooked branches. It may also grow either in a prostrate, spreading form, or more rarely in a taller, straighter form that may reach 20 m in height (Little and Skolmen 1989, Wagner and others 1990). *Hibiscus tiliaceus* is most often found in wet areas along coasts, such as at the mouths of streams or in more saline areas upstream of mangrove forests. It exhibits a high degree of ecophysiological plasticity, however, and can be found in upland mesic forests to about 500 m and along relatively dry coastlines where it is subjected to high levels of salt spray and substrate salinity (Alpha 1994, Little and Skolmen 1989, Whitesell and others 1986). The tree can grow well on mud, marl, sand, and limestone. It attains greater stature on high, well-drained inland sites. On wet sites the lower branches of *H. tiliaceus* often bend down and take root, resulting in essentially impenetrable thickets.

Hibiscus tiliaceus wood is moderately soft and porous, but also moderately heavy (specific gravity about 0.6) and strong. The wood is durable in salt water and has been widely used for canoe outriggers, fishing floats, planks, and pilings. The bark provides a useful fiber that historically had many uses, ranging from cordage to strainers for kava. The flowers, roots, and bark have a number of medicinal properties, and both roots and leaves have reportedly been used as food, especially in times of famine (Little and Skolmen 1989, Neal 1965). The species has also been widely planted in some locations for erosion control, dune stabilization, and as an ornamental (National Academy of Sciences 1983).

Flowers are borne either in small terminal branching clusters (panicles) or laterally, near the ends of twigs. The showy flowers have yellow petals about 6 to 9 cm long. Flowering occurs throughout the year (Little and Skolmen 1989, Little and Wadsworth 1964). The fruit is an elliptical, long-pointed capsule, typically containing from 5 to 15 brownish-black seeds approximately 0.3 to 0.5 cm long (Nakasone and Rauch 1973, Little and Skolmen 1989). Capsules ripen about 5 to 7 weeks after pollination (Nakasone and Rauch 1973); at maturity they split and break open the calyx and involucre, which remain attached. Seed set often appears to be very low, but no published information on seed set was located.

Capsules should be collected before splitting and air-dried in a paper bag or other container that will minimize seed loss once the capsules open. Capsules can often be readily collected by hand. Seeds of other *Hibiscus* species stored under refrigeration for at least 2 years show a considerable loss of viability (Nakasone and Rauch 1973). Therefore, sowing immediately after removal from the capsules is recommended.

Scarification of the seed coat is recommended to ensure timely germination. Alpha (1994) reported between 50 percent and 70 percent germination within 4 weeks for seeds scarified by sanding lightly with 400 grit sandpaper, compared to 0 percent germination for untreated seeds. Nakasone and Rauch (1973) suggest nicking the seed coat with a knife.

Alpha (1994) reported adequate germination in a range of media, including loamy soil, crushed basalt, and sand. Nakasone and Rauch (1973) recommend transplanting seedlings from germination flats when they reach 5 to 7.5 cm in height. Seedlings can be transplanted into small dibble tubes or pots. Transplanted seedlings should then be kept in partial shade for several weeks before gradually being moved to direct sunlight. Seedlings are ready for outplanting when they reach about 25 to 40 cm.

Hibiscus tiliaceus is also readily, and perhaps more commonly, propagated from cuttings. Both softwood (Dirr 1983) and hardwood (Nakasone and Rauch 1973) cuttings can be used. Treatment of cuttings with indolebutyric acid reportedly improves the rooting of other *Hibiscus* species, but good results have been obtained for untreated cuttings of *Hibiscus tiliaceus* (Cole 1997).