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Gardenia latifolia Aiton

Taxonomy and Nomenclature

Species name*: Gardenia latifolia* Aiton
Family name: Rubiaceae
Synonyms: *Gardenia calyculata* Roxb., *Gardenia enneandra* J.Koenig ex Roxb.
Vernacular (common name): Indian Boxwood, Ceylon Boxwood, Papra.

Distribution and habitat

The tree is native to India, Bangladesh, and Sri Lanka and is also found in tropical and subtropical regions of Asia, Africa, and Madagascar. In India, it is distributed in the Central and southern part, mostly in dry deciduous forests at an altitude of 400-900m. It may grow on boulder and gravelly soil. It is found in open forests and rocky hills. The annual rainfall of its habitat is 750-2000mm. It grows well in full sun in a well-drained soil. The plant is relatively shade-intolerant.

Use

It is an ornamental tree with beautiful fragrant flowers. The wood is creamy to yellowish white with no distinct heartwood, somewhat lustrous, smooth, hard, strong, heavy, fine, and even-textured. It is easy to saw and work, takes a fine polish, and is durable under shade. It is used for making minor utensils, turnery articles and light furniture. The bark of the stem and fruits are reported to be used as a folk medicine for treating various ailments such as hemorrhage in humans, skin diseases, dental caries, stomach pain, snake bite, and ephemeral fever in live stocks. Bark, root, leaves, and seeds are also used as medicine for humans and farm animals. The fruit extract is used as a dye and food additive due to the high content of yellow pigments. The fleshy, purplish-colored pulp of the fruit is edible.

Botanical description

Indian Boxwood is a long-lived deciduous tree up to 30 m tall, with stiff divergent branches forming a rounded crown. The bark is greenish-grey, peeling and leaving smooth, concave, rounded depressions. Branches woody, terete, and stout. Leaves opposite, stipulate, subsessile to petiolate. Petioles 2-6mm long, flattened, glabrous; stipules 0.5-1.5 × 0.5-1.5 cm, inflated, connate, truncate or slightly toothed above, membranous; lamina ovate, orbicular, entire, apex broadly acuminate, coriaceous, glabrous above, pubescent below especially on veins. Flowers are solitary or in lax cymes, sessile, bisexual, appearing at the end of the branches, pedicellate, fragrant. Pedicels 0.6-0.8 cm long, smooth, glabrous. The sepal cup is bell-shaped, with five valvate lobes apically. Base of the flower is a narrow tube, the petals then bent abruptly outward at right angles (salverform). Flowers are white or pale lemon-yellow, orange when fading. The flower tube is about 5 cm long, with 5-9 obliquely obovate petals, about half as long as the tube. Stamens 5, inserted in corolla tube, included or partially exserted. Anthers are dithecous, partly exserted. The style springs up from the center of the flower and protrudes out of the corolla tube; stigma is 5-lobed, club-shaped, thick, and fleshy.

Fruit and seed description

Fruit is an indehiscent berry, globose, woody, 3-5 cm in diam., slightly scabrous with a crown of the calyx, pubescent when young, without ribs, pale green and speckled. Outer fruit cover dry; inner

part fleshy. Seeds numerous, rugose, tiny, flattened, irregularly shaped, pale brown in purplish-grey pulp. 100,000 – 200,000 seeds weigh one kg, i.e. 1000 pure seeds weigh 5-10 g.

Flowering and fruiting habit

Flowering takes place from February to April; the flowering phase is initiated at the end of leaf fall but peak flowering occurs simultaneously with leaf flushing. The flowers are milky white emitting strong sweet fragrance immediately after anthesis but it gradually loses fragrance by the next day of anthesis. The corolla appears then golden yellow and turns light brown then withers and wilts on the 3rd day. Thrips, bees, and bats are the main pollinating agents. Fruit matures in May-June in Central India. Seeds are dispersed by birds and mammals.

Seed collection

Mature fruits should be collected from the tree by plucking or lopping the small fruit-bearing branches when the color of the fruit is still green and the seeds turn brown. The moisture content of the seeds at this stage of maturity is 30-40%.

Processing and handling

Woody fruit coat is cut open manually with the help of a knife. Then fruits are macerated over wire mesh and washed with tap water to separate the seeds from the pulp. The seeds are then dried in the shade.

Dormancy and pretreatment

Seeds presumably have chemical inhibitors in the pulp, but these are removed during processing where the fleshy cover is removed by washing. After this treatment, seeds have no dormancy and therefore no pre-sowing treatment is required.

Storage and viability

Seeds are categorized as orthodox as they can tolerate 4-5% moisture content and subzero temperatures. At ambient temperature (15^{o}-35^{o}C) initial viability is retained for one year if stored with 4-5% seed moisture content. Viability can be extended for more than two years if seeds are stored with 4-10% moisture content at 15^{o}C or less.

Sowing and germination

Propagation is done by seeds. Germination percentage and time are 90-100% and 3-4 weeks respectively.

Pest and Diseases

The plant is affected by infestation by sweet potato bug *Physomerus grossipes.*

Selected readings

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