

## Vitex parviflora

vitex

A.L. Juss

Verbenaceae

### LOCAL NAMES

Filipino (sagat,molave,amugauan); Indonesian (kayu kula,fuli kaa); Trade name (vitex)

### BOTANIC DESCRIPTION

*Vitex parviflora* is a medium-sized to fairly large tree up to 30(-38) m tall, bole up to 125(-200) cm in diameter and branchless for up to 20m, but often much shorter and crooked, with buttresses; bark surface smooth, shallowly fissured or flaky, pale grey to pale yellowish-brown, inner bark pale yellow to bright orange; crown often spreading.

Leaves opposite, compound, 3-foliolate, leaflets glabrous below.

Inflorescence terminal and in the upper leaf axils, paniculate, rather lax; flowers bisexual, zygomorphic, calyx cup-shaped, with 5 lobes, calyx lobes absent or indistinct; corolla with a short tube, bluish, 2-lipped, upper lip 2-lobbed, lower lip much larger and 3-lobed, pubescent outside; stamens 4, inserted on the corolla tube, exserted, didynamous; ovary superior, 2-4 chambered, with 1 filiform style having a bifid stigma.

Fruit a drupe, subglobose, sessile on the often enlarged calyx, 5mm in diameter, bluish-black when mature, 1-4 seeded.

Seed obovoid or oblong, lacking endosperm.

### BIOLOGY

The tree sheds leaf partially or entirely during the later part of the dry season. It flowers in the rainy season and fruits ripen within a few months. Planted trees start flowering 5-6 years after planting. *Vitex* species generally exhibit hermaphroditism, where both functional male and female organs are in the same flower (Lars Schmidt, 2000).



Mature stand: A 50-year-old stand planted in Makiling Forest Reserve, Philippines. (Rafael T. Cadiz)



Young plantation (Rafael T. Cadiz)



Line artwork: 1. habit of fruiting twig  
2. portion of inflorescence  
3. Flowers (Rafael T. Cadiz)

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### ECOLOGY

*Vitex* occurs most commonly in comparatively dry regions in lowland forest, often in deciduous forest on rocky ground, on grassy slopes and on dry limestone soils, but sometimes also in littoral rain forest or hill forest. It is usually found in regions with distinct wet and dry seasons. The species often occur gregariously in secondary forest and primary forest, in association with *Intsia*, *Pahudia*, *Sindora*, *Toona* and *Wrightia* species.

### BIOPHYSICAL LIMITS

Mean annual temperature: 22-32 deg.C

Altitude: 300-1 000 m

Mean annual rainfall:750- 2 600 mm

Soil type: *V. parviflora* tolerates a wide range of soils but occurs mostly on dry limestone soils.

### DOCUMENTED SPECIES DISTRIBUTION

Native: Indonesia, Philippines

Exotic:



The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

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### **PRODUCTS**

Fodder: Leaves are used as fodder.

Fuel: *V. parviflora* is a source of firewood.

Timber: The wood is hard and durable with a density of 940 kg/m<sup>3</sup> at 15% moisture content. It is resistant to fungal, termite and Lyctus beetle attack, but not to marine borers. Vitex timber is used for high-grade construction, interior finishing, flooring, house building, shipbuilding, railway sleepers and carving. The wood often takes on a yellowish-green or greenish-brown tint when boiled in water.

Gum or resin: A yellow resin exudes when the wood is treated with lime.

Tannin or dyestuff: When shavings are soaked in water a yellow extract is obtained.

Medicine: Bark and wood are used in local medicine; as a styptic, emetic, antitoxic and to treat jaundice and dropsy.

### **SERVICES**

Shade or shelter: Molave has been suggested for shelterbelts in the Philippines.

Reclamation: It is planted in reforestation projects in the Philippines.

**TREE MANAGEMENT**

In the Philippines, *V. Parviflora* is generally planted using bare-rooted seedlings at 2m x 2m, after 20 years a plantation yielded 76 cu m/ha (mean annual increment of 2.6 cu m/ha). Mean annual height and diameter increment of 0.4-1m and 0.7-1cm respectively have been recorded. Plantations for wildling production are spaced 2m x 6m. Survival of young trees is enhanced by removing weeds 3-4 months after planting and from then on annually up to 10 years.

**GERMPLASM MANAGEMENT**

There are 10 000-18 000 seeds/kg. Seed starts to germinate 10-40 days after sowing. Removing the pericarp and soaking the seed in hot water (70 deg C) may enhance the germination rate for up to 70%. Fruits are ready for collection when they turn dark brown on the tree.

**PESTS AND DISEASES**

Beetles such as *leucopholis irrorata*, *Anomala* sp. and an identified melothonthid beetle defoliate the tree. Some insect pests cause serious damage to 9-25 year old trees in Philippines and Java such as the carpenter moth (*Xyleutes ceramicus*) whose larvae may damage the cambium of trunk and branches. *V. parviflora* serves as an alternative food plant for the teak defoliator (*Hyblaia purea*).

**FURTHER READING**

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**SUGGESTED CITATION**

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