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RESEARCH ARTICLE

Syzygium sasidharanii sp. nov. (Myrtaceae) – A new species with edible fruits from Agasthyamala Hills of Western Ghats, India

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Abstract

A new tree species with edible fruits, *Syzygium sasidharanii* (Myrtaceae) is described and illustrated from the Agasthyamala hills of southern Western Ghats. Reddish-brown coloured tender leaves and clusters of large yellow fruits in terminal panicle are the peculiarities of the new species. A sizable population of the new species exists in the camel hump region of Agasthyamala hills, from Pongalappara to Chemmungi.

Introduction

Syzygium Gaertner (Myrtaceae), a tree genus represented by more than 1,200 species is mainly distributed in the Old World tropics from Africa to the West Pacific and Malesia (Parnell *et al*., 2007; Govaerts *et. al.*, 2008). In spite of several studies worldwide to elucidate *Syzygium-Eugenia* controversy, phylogeny, infrageneric classification, systematics and conservation (Craven and Biffin, 2010; Govaerts *et. al*., 2008; Kostermans, 1981; Parnell *et. al*., 2007; Schmid, 1972; Sheeba Irwin *et. al*., 2003; Veldkamp, 2003), the genus remains the most complicated one among the angiosperms. According to the recent compilation by Govaerts *et al.* (2008), 54 taxa are recorded from India including several recently described as well as new distribution records. Taxonomic status of several taxa has also been revised in this work, though there are contradictions.

Western Ghats, especially the evergreen forests in the high ranges of southern Western Ghats is a potential centre of *Syzygium* in India. Altogether 35 taxa of *Syzygium* were reported from the Kerala part of Western Ghats (Sasidharan, 2013). Among the 35 taxa, 16 are placed under various threat categories of IUCN (IUCN, 2012). Many species are grown in homesteads and public places for their fruits, as avenue and ornamental trees. Five taxa in Kerala are exotics, including the widely cultivated spice *Syzygium aromaticum*.

During the floristic explorations in various parts of Western Ghats, a population of *Syzygium* with fairly large yellow fruits was observed at *Druryi rock* region of Agashyamala in 2006. According to the local guide, Mr. Appy, the fruits are edible and he used to take the fruits during the fieldtrips. Our experience also endorse his claim on the edibility. Further explorations during 2008, 2010 and 2012 located similar trees in Pongalappara and Chemmungi hills of Agasthyamala. Critical study with the literature (Ashton, 1981; Chithra, 1987; Duthie, 1878-1879; Manilal and Sabu, 1984; Mohanan and Henry, 1987; Murugan *et. al*., 2002, Ravikumar, 1999; Sasidharan and Jomy, 1999; Shareef *et. al*., 2010; Shareef *et. al*., 2012; Viswanathan and Manikandan, 2008) and authentic specimens in various Herbaria revealed that our specimens do not agree with any of the described species. Along with the taxonomic evaluation, a survey was also conducted to assess the status of the existing population. These studies resulted in the finding of a new species, which is described and illustrated here as *Syzygium sasidharanii.*

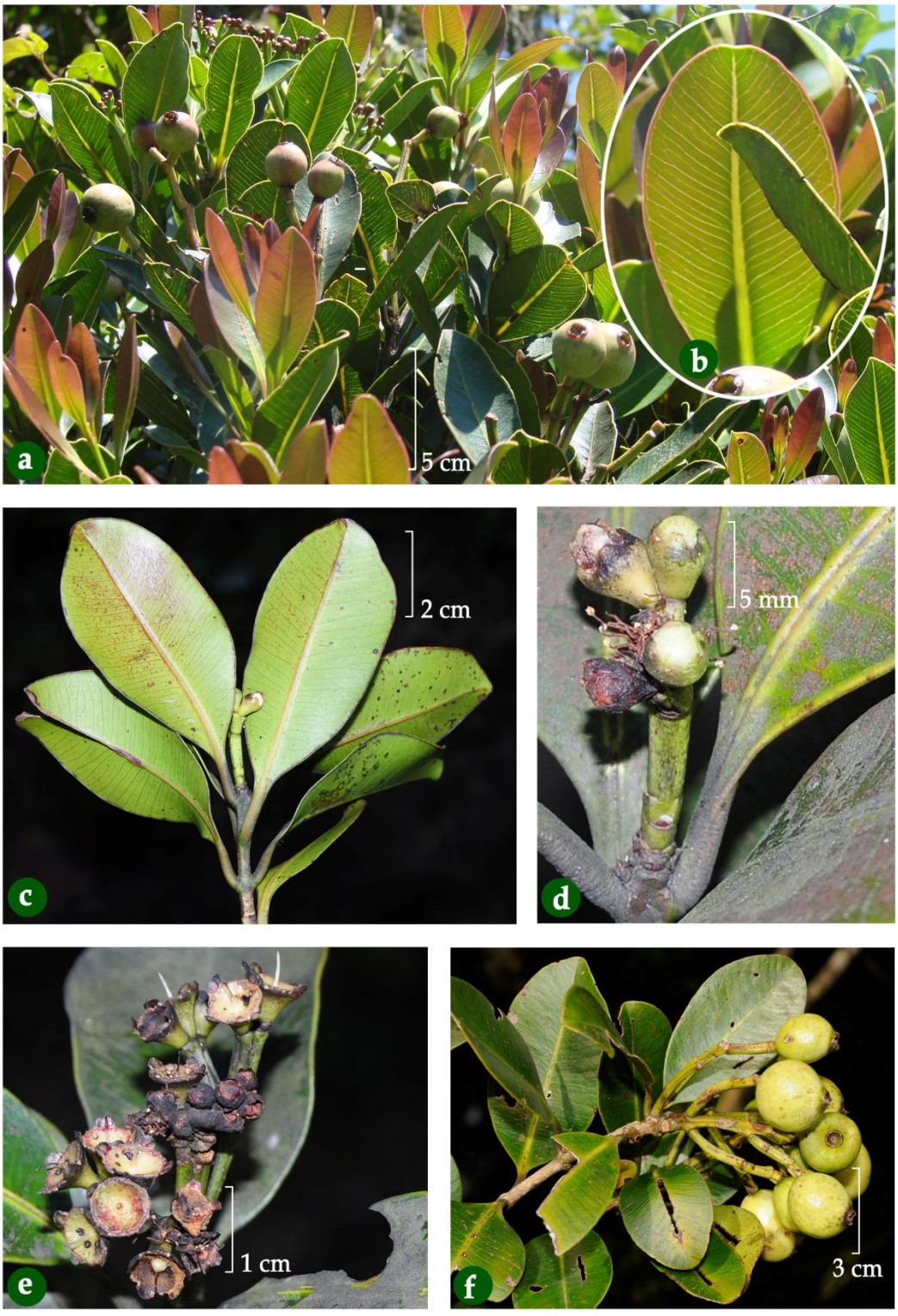

Figure 1. ***Syzygium sasidharanii*** Sujanapal sp. nov. **a.** Tender shoot with immature fruits, **b.** leaf portion enlarged - showing secondary veins, **c.** leaf - abaxial view, **d.** flower and buds, **e.** hypanthium, **f.** fruiting twig

Syzygium sasidharanii Sujanapal sp. nov**.** (Fig. 1)

Type: INDIA, Kerala, Thiruvananthapuram district, Agasthyamala, Druryi rock, N 8.6168° E 77.2618°

±1500 m, 21 February 2006, *P. Sujanapal 18710 (with fruits)* (Holotype, MH; Isotypes, CALI; KFRI)

Syzygium sasidharanii is analogous to *Syzygium montanum* (Wight) Gamble (= *Syzygium grande* (Wight) Walp.) by the obovate to elliptic coriaceous leaves and slightly quadrangular branchlets. But can be easily distinguished by the odourless leaves with prominent secondary nerves on adaxial side, moderate sized flowers and large yellow fruits against the mango scented leaves with faint secondary nerves, small flowers and small dark purple fruits of *S. montanum* (Table 1).

Table 1. Comparison of *Syzygium sasidharanii* with its allied species

Characters	*S. montanum (= S.grande)*	*S. sasidharanii*
Habit	medium trees, blaze light pinkish-yellow	small trees, blaze dark brownish-red
Young leaves	pale yellowish-green coloured	reddish-brown coloured
Leaves	mango scented, thickly coriaceous, secondary nerves faint on adaxial side	odourless, coriaceous, secondary nerves prominent on adaxial side
Inflorescence	axillary or terminal corymbose panicles, peduncle terete	terminal cymose panicles, peduncle strictly quadrangular
Flowers	many in cluster, to 0.5 cm across, bud yellowish-green in colour	few in panicle, to 1 cm across, bud dark brown in colour
Hypanthium	obconic, ca. 3 mm across	funneliform, ca. 7 mm across
Fruit	dark purple coloured, obovoid, *ca*. 0.5 cm diam., with a depression at apex; seed ca. 3 mm, mesocarp succulent.	yellow coloured, globose, to 3 cm diam., without a depression at apex; seed ca. 1.5 cm, mesocarp spongy.

Trees, to 7 m high; young shoots reddish-brown coloured, branchlets glabrous, slightly quadrangular when young, become terete when mature. Leaves opposite, decussate, obovate or obovate-elliptic, 4–9 × 2–4 cm, coriaceous, cuneate at base, obtusely acute, sub-acute, rounded or rarely retuse at apex, glabrous, recurved along margins, midrib canaliculate above, prominently raised beneath; secondary veins 20–30 pairs, impressed, prominent above, opposite, brochidodromous; intramarginal vein prominent; petiole 0.8–1 cm long, glabrous. Inflorescence terminal cymose panicles, 5–15 cm long, glabrous; peduncles quadrangular, thick, glabrous, branchlets opposite, basal ones long reaching the apex of main axis, non-corymbiform. Flowers lax, sessile, to 1 cm across; hypanthium funneliform, to 7 mm across. Sepals 4, broadly ovate, ca. 3×3 mm. Petals 4, calyptrate, white, orbicular, ca. 3×4 mm, membranous, margin undulate, punctate. Stamens many, yellowish of different lengths, 4–8 mm long, glabrous; filaments to 7 mm long, incurved; anthers reniform, ca. 1×1 mm. Ovary obovoid, ovules many; style yellow, glabrous, stigma minute. Fruit globose, yellow, to 3 cm diam.; seed one, greyish, to 1.5 cm diam., mesocarp spongy.

Additional specimens examined (Paratypes):—INDIA, Kerala, Thiruvananthapuram district, Agasthyamala, Pongalappara, ±1550 m, 10 March 2010, *P Sujanapal & A J Robi KFRI 22176 (with fruits)*; Pandimotta, ±1400 m, 21 February 2012, *P Sujanapal & A J Robi KFRI 23338 (with flowers.)*

Flowering and fruiting: October–March

Distribution and Ecology:—So far known from the high altitude stunted evergreen forest in the windward side of the Agasthyamala phytogeographical region of southern Western Ghats. Fairly good populations with normal flowering and fruiting were observed in three locations in the mountain slopes such as Druryi rock, Pongalappara and Pandimotta. Due to topographical peculiarities and climate, the habitats resemble shola forests with thick growth of epiphytes and lichens. Associated tree species and shrubs are *Actinodaphne campanulata* Hook. f., *Alseodaphne semecarpifolia* Nees var. *parvifolia* Hook. f., *Eurya nitida* Korth., *Eugenia mabaeoides* Wight, *Eugenia discifera* Gamble, *Neolitsea scrobiculata* (Meisner) Gamble, *Pittosporum neelgherrense* Wight & Arn., *Syzygium parameswaranii* M. Mohanan & Henry, etc.

Eponymy:— Specific epithet of the new taxon is in honor of Dr. N. Sasidharan, a renowned taxonomist from south India, for his valuable contribution to the fields of angiosperm taxonomy and floristics.

Conservation status:— All the habitats of the new species are interspersed with grassy patches in rocky areas. So the populations are prone to forest fire. The vegetation in one of the locality viz. Pongalappara is shrinking mainly due to pilgrimage to Agasthyarkoodam. Observation on the populations in various locations showed that regeneration is poor and some of the mature trees have fallen down and a few standing trees are with broken branches. Therefore efforts are needed to protect the existing population.

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