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Notes on *Laportea aestuans* (L.) Chew (Urticaceae): A new threat to Indian flora

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Abstract

The genus *Laportea* Gaudichaud belonging to the family Urticaceae comprises ca. 22 species, two species of which *viz*. *L. interrupta* and *L. bulbifera* are found growing in India (1). A third species namely *L. aestuans* is reported for the first time in the country, from Kollam district in Kerala. The species was so far known to occur in Tropical Africa from Senegal eastward to Eritea and southward to Angola, Zimbabwe and Mozambique and in Madagascar, Yemen, Aldabra and neighbouring Islands, Tropical Asia, Tropical America, West Indies, Arabia, Sumatra, Java, Indonesia and Taiwan. This exotic species becomes a nuisance as it invades and surmounts the native biodiversity in the local ecosystem. This may lead to severe degradation of the existing vegetation altering the ecological fabric of the region as a whole. The impact is the homogenization resulting in the extermination of the local flora. The species is described and illustrated.

Keywords: exotic; India; *Laportea;* new record; threat; Urticaceae

Introduction

Among the 48 genera and more than 1050 species belonging to the family Urticaceae, the "Stinging Nettle" genus *Laportea* Gaud., alone comprises ca. 22 species (2-6). The genus is called 'Stinging Nettle' because most of the species are armed with stinging hairs. *Laportea* is predominantly a pantropical genus, enjoying distribution mainly in Africa, Asia, Madagascar, China, Japan, Java, New Guinea, Australia and North America (7).

Deb mentions that there are 5 species of *Laportea* in the Indian Territory (8). But during our investigation through all the available literature and consultation with all regional herbaria in India we could find that India has only two species namely *Laportea bulbifera* (Sieb & Zucc.) Wedd. and *L. interrupta* (L.) Chew, all the other species *sensu* Deb (*l.c.*) are either synonyms or wrong quotes. Kerala (8°18' and 12° 48' N Latitude and 74° 52' and 77° 22' E longitude), the southernmost state of the country along the western coast of Peninsular India holds 199 naturalized exotics and 417 cultivated or planted exotics (9). The family Urticaceae represents 31 species under 13 genera in Kerala. The genus *Laportea* has only two species, the same two species namely *Laportea bulbifera* and *L. interrupta,* reported elsewhere in the country.

Laportea bulbifera (Siebold & Zuccarini) Weddell (10), commonly called as 'Slender Nettle' or 'Nilgiri Nettle' (11), formerly treated as *L. terminalis* Wight (12) and *Urtica bulbifera* Siebold & Zuccarini (13), having less virulent sting compared to the other species is found in the evergreen and shola forests and also as a weed in gardens. This species has got wide distribution across India, Bhutan, Tibet, Sri Lanka, Myanmar, Japan, Korea, China, Malaysia and Nepal (14). *Laportea oleracea* Wedd. (Monogr.141 and in DC. Prodr. xvi.i.87), the species from the Sikkim Himalayas, reported in the Flora of British India (15) find an important mention by J D Hooker. He observed that "this may be a slight variant of *L. terminalis* with distinctly serrate (not toothed) leaves" and hence included under *L. bulbifera*. This is a weed frequently found in damp, wet places, shady plains and lower elevations of Ghats, cultivated fields and foot hills, waysides, near gardens and also in open places.

Laportea interrupta (L.) Chew, on the other hand find mention in the Rheede's *Hortus Malabaricus* (16), under the common name "Batti-schorigenam". The name "Batti-schoigenam" was cited in the protologue of *Urtica interrupta* L. and consistently been identified as a basionym of *Laportea interrupta.* "Batti", also spelt as "patti" denotes dog and "schorigenam", also spelt as "choriyanam" gives clue about the irritant nature of the plant, because of the presence of stinging hairs. This species is also called as "vatta choriyanam", "vatta" means round, may be because of its round leaves. In some areas near Thrissur, this species is also known locally as 'Chenthotti'. *L. interrupta* has got wide distribution over Africa, Abyssinia, Sri Lanka, India, Japan, China and the entire South East Asia, extending up to Queensland. *L. interrupta* is an under-shrub with usually not more than 50 cm height and purple streaked stem, 10 - 15 cm long and less branched peduncles and more virulent sting compared to the slender, less vigorous and 'less virulent sting' habit of *L. bulbifera.*

The re-typification of the genus *Laportea* has resulted in serious name changes (17). For example, one of the related species of *Laportea* commonly called 'Elephant Nettle', 'Fever Nettle' or 'Devil's Nettle', an Indo-Malayan member, whose distribution ranges throughout the evergreen forests of Tropical Himalayas, Sikkim, Assam, Khasi hills, Karnataka, Tamil Nadu, Kerala, Sri Lanka, Sumatra and Malaysia, which was initially known by the name *Laportea sinuata* (Bl.) Bl. ex Miq., have been shifted to another genus *Dendrocnide* and currently known by the name *Dendrocnide sinuata* (Blume) Chew. Meanwhile, the genus *Fleurya* Gaudichaud (1) has been merged into the genus *Laportea.* For example, the type species of *Fleurya* named *F. spicata* Gaud. has been shifted under *Laportea* and treated as *Laportea interrupta* during the re-typification and at the same time many of the *Laportea* species were still maintained in the genus of *Laportea* Gaud. *Dendrocnide sinuata* is the worst of the stinging nettles. The minute stinging hairs present on the petioles, not the leaf blades, cause acute pain to those who touch the leaves. The sting is very painful lasting for a day or more and the pain increases when the affected part is dipped in or comes in contact with water. The sting may also cause violent sneezing, fever and itching.

Geographical distribution

Laportea aestuans was so far known to occur in Tropical Africa from Senegal eastward to Eritea and southward to Angola, Zimbabwe and Mozambique and in Madagascar, Yemen, Aldabra and neighbouring Islands, Tropical Asia, Tropical America, West Indies, Arabia, Sumatra, Java, Sunda Islands and Taiwan.

The authors have collected both the species of *Laportea* namely *Laportea interrupta* and *L. bulbifera* during their studies and have got confused with an interesting specimen of *Laportea* while screening the wayside flora of the state as part of the ongoing programme on the survey, exploration and documentation of the floristic wealth of Kerala. The specimens were collected from Kavanadu in Kollam District which on critical examination was found to be an exotic species, not so far recorded from the state and not even from India. The species has been identified as *Laportea aestuans* (L.) Chew, commonly known as 'West Indian Nettle' or 'West Indian Woodnettle'. This is a food plant for snails, especially the Giant African Snail (*Achatina fulica*), one of the world's largest and most damaging land snail pest. Its population outburst may further affect to appear as a pest on the cultivated and native plants as well.

A detailed description of the species, photoplate (Fig. 1) and key for the identification of the allied Indian species are provided for easy diagnosis. Voucher specimens are housed at TBGT.

Laportea aestuans (L.) Chew Gard. Bull. Sing. 21: 200. 1965 & 25: 164. f. 19. 1969. *Urtica aestuans* L., Sp. Pl. (ed. 2) 1397. 1763. *Fleurya cordata* Gaud. in Freye. Voy. Uraine Bot. 498.1830. *F. petiolata* Decne. in Nouv. Ann. Mus. Hist. Nat. Paris Ser. 3. 3: 490. 1834. *F. aestuans* (L.) Gaud. *ex* Miq., Fl. Bras. 4 (1): 196. 1853.

Erect annual herbs, more than 1 - 2 m tall, little branched, more or less woody at base. Stem green, succulent, 5 - 6 ridged, tender shoots and leaves covered with 1 - 2 mm long glandular hairs. Leaves simple, spirally alternate, crowded towards the top of the stem; stipules linear lanceolate, to 1.5 cm long, fused up to the middle, apex 2 - cleft; petiole 5 - 15 (20) cm long, densely covered with soft glandular hairs, with a few stinging hairs intermixed; lamina ovate to broadly ovate, 7 - 28 x 5 - 16 (32) cm, chartaceous, base cordate, tip acuminate, margin crenato - dentate, upper surface with scattered stiff and stinging hairs, lower surface with stinging hairs on the nerves, lateral nerves 5 - 9 pairs, basal nerves reaching more than half of the length of lamina. Inflorescence bisexual, axillary, paniculate; peduncles 7 - 25 cm long, covered with soft hairs. Male flowers ca.5 mm diam., pedicel ca. 0.5 mm, perianth segments 4 - 5, ca. 1 mm diam., ovate, with few glandular hairs at the apex; stamens 4 - 5, white. Female flowers densely clustered, ca. 0.7 mm diam., pedicel ca. 0.5 mm long, perianth segments 4, unequal, lateral perianth segments enclosing the ovary, dorsal and ventral segments much smaller; ovary 1-celled; stigma linear, unbranched, slightly reflexed, filiform with brush like hairs. Achenes obliquely ovoid, 1 - 1.5 x 1 - 1.5 mm, laterally compressed ovoid to ellipsoid with oblique tip and 1 - 2 mm long pedicel, more or less covered by the lateral perianth segments.

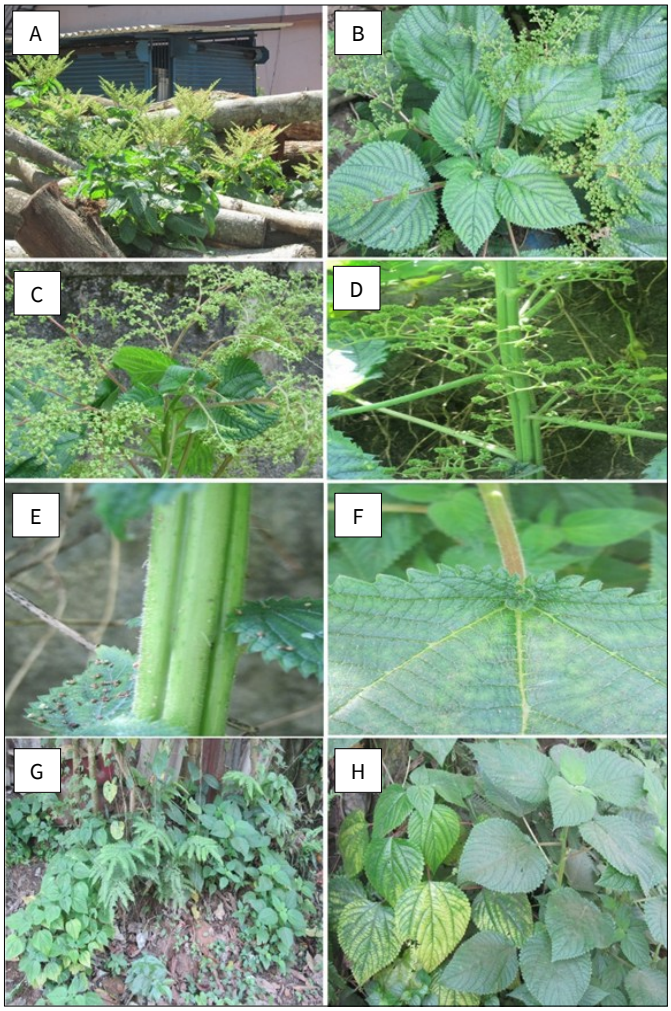

Fig. 1. Population located in the timber depot A & B. Flowering specimen C & D. Closer view of inflorescence E. stem F. leaf G & H. Natural population.

Specimens examined

INDIA. Kerala: Kollam District, Kavanadu: G Rajkumar & A Nazarudeen 81348 (TBGT); Kavanadu: G Rajkumar & M Alister 81349 (TBGT).

Key to the species of *Laportea* in India

1. Stigma trifid; inflorescence simple branched……*L. interrupta*

1. Stigma simple; inflorescence many branched……..2

2. Herbs, without glandular hairs, leaves lanceolate.....*L. bulbifera*

2. Herbs with glandular hairs, leaves ovate……*L. aestuans*

Conclusion

There is high similarity between *Laportea interrupta* and *L. aestuans*, the former is more closely allied to *L. aestuans* by sharing certain characters such as leaf shape, size *etc*. *L. interrupta* can be distinguished by flower clusters being combined into interrupted pseudo-spikes with unbranched racemes in which the lateral branches are greatly reduced with flowers fascicled at intervals along the elongated peduncles. *L. aestuans* is characterized by profuse dichotomous branching of the female panicles compared to the less profuse branching of the male inflorescence and the flower clusters are combined into flat dense corymbs. Fosberg & Renvoize noted that the *L. aestuans* in Aldabra and neighbouring Islands were of short stature but elsewhere this species is often much taller with larger leaves and longer inflorescences (4).

Laportea aestuans, rightly designated as a pantropical weed (18) is a new invasion to the Indian flora, going to be a fast diffusing and unforeseen threat to the native herbaceous diversity, especially to the coastal vegetation. Many of the exotic weeds invade new areas, establish rapidly and become a permanent constituent replacing the natural flora of the particular region and become a real menace to the indigenous species (19). The movement of new weeds from one place to another may be either due to natural or manmade reasons. *Laportea aestuans*, being a weed having such a wide distribution throughout the tropics is inferred to have invaded to the new location specified in this communication along with shipment of wood from tropical countries. The fact that the species reported in this communication is from the vicinity of a timber depot (Fig. 1) at Kavanadu in Kollam district is a strapping clue to strengthen this observation. The species at present is distributed in the low elevations at the sea level in the locations (*l.c.*) but reports show that this species is adapted to grow up to 1300 m altitude along roads, in farmlands and disturbed locations in forests (20). Effective and time bound control measures are warranted for the eradication of this weed.

Authors' contributions

GR carried out taxonomic studies and drafted the manuscript. NA identified plant specimen and made critical note on the species. Both the authors read and approved the final manuscript.

Compliance with ethical standards

Conflict of interest: Authors do not have any conflict of interests to declare.

Ethical issues: None

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