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Research article

Persicaria perfoliata (L.) H. Gross (Polygonaceae): A species new to Eastern Ghats of India

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Abstract: *Persicaria perfoliata* [Polygonaceae] is popularly known as Mile-a-minute weed. It was recorded for the first time from forests of Paderu hills Eastern Ghats. As of now, no reports were observed from Eastern Ghats of India. It forms new angiospermic addition for biodiversity of Eastern Ghats. It is being described along with field photographs to make an easy identification. Adjoining floral association and importance value of the present species were discussed.
Keywords: Biodiversity - Flora - Mile-a-minute - Paderu hills - Andhra Pradesh.

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INTRODUCTION

Mile-a-minute weed [*Persicaria perfoliata* (L.) H. Gross], is a member of the family Polygonaceae. It is a native plant of Asian countries, distributed including India, Bangladesh, Nepal, China, Japan, Korea, Siberia, Turkey, Philippines, Malay Peninsula, Indochina Peninsula and Indonesia (Wu *et al.* 2002, Kantachot *et al.* 2010, Robbins *et al*. 2014). India, it was reported only from Darjiling and Sikkim parts of the Eastern Himalaya (Das *et al.* 2010), Koch Bihar district of West Bengal (Bandyopadhyay & Mukherjee 2010) and Gori Valley of Meghalaya (https://sites.google.com/site/efloraofindia/species) nevertheless, this taxon not been reported from Eastern Ghats (Gamble & Fischer 1915–1936, Pullaiah & Moulali 1997, SubbaRao & Kumari 2002, Reddy *et al.* 2008) (Fig. 1). However, this species is a noxious weed in USA, Mexico, England and other adjacent countries (http://www.cabi.org/, Driesche *et al.* 2002). It spreads very rapidly, grows up to 15 cm per day (Kumar & DiTommaso 2005) and reach up to forest sub canopies. It has the capability to overlap on other native vegetation (Poindexter 2010) and curbs forest regeneration (Wu *et al.* 2002). In China, very few records are showing *Persicaria perfoliata* as a weed in the agricultural environment (Wang *et al.* 1990). Such kind of severe threat has not been recorded in India.

MATERIALS AND METHODS

Botanical explorations were conducted in forests of Eastern Ghats of Andhra Pradesh in July 2015. In this processes, we have collected *Persicaria* sp. in degraded forests of Kantavaram village, Paderu hills. Few individuals were collected for taxonomic study and to make herbarium. While making herbarium specimens, we followed standard herbarium methods (Jain & Rao 1977). Field and voucher numbers were allocated. Habitat condition, adjoining plant communities and other taxonomic notes were recorded for specimens and deposited in Andhra University Herbarium (AUH).

RESULTS AND DISCUSSION

Enumeration of species:

Persicaria perfoliata (L.) H. Gross, Beih. Bot. Centralbl. 37(2): 113. 1919. **(Fig. 2)**

Amplelygonum perfoliatum (L.) Roberty and Vautier, *Chylocalyx perfoliatus* (L.) Hassk., *Echinocaulon perfoliatum* (L.) Hassk., *Echinocaulos perfoliatus* (L.) Meisn. *Fagoparum perfoliatum* (L.) Rafine., *Fagoparum perfoliatum* (L.) Rafine., *Polygonum perfoliatum* (L.) L. *Tracaulon perfoliatum* (L.) Greene, *Truellum perfoliatum* (L.) Sojak (http://www.cabi.org)

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Climbing annual vine, usually grows up to 6–15 m; Stems scandent, slightly ribbed, glabrous, and glaucous; prickles covers both stem and petioles. Prickles 0.4–1–2 mm long, slightly recurved. Ocrea, round glaucous, perfoliate, present at both base of the each petiole and inflorescence. Leaves alternate, petiole 3.5–7 cm; leaves glaucous, ocrea green, foliaceous, peltate, not prickled, margins entire, eciliate, surface glabrous; leaf shape triangular, base truncate, apex acute. Inflorescences spike, 5–12 × 5–10 mm; peduncle 10–50 mm, retrorsely prickly; ocrea overlapping, margins eciliate. Pedicels ascending, 1–3 mm. Flowers 1–4 per ocreate fascicle end of the spike has 4 to 11 flowers; perianth creamy greenish white, glabrous, accrescent, becoming fleshy and pale blue in fruit; tepals 5, broadly elliptic, 2–3.5 mm long, apex acute to obtuse; stamens (6–)8, filaments distinct, free; anthers ovate; styles 3, connate proximally. Seeds shiny black spherical, peanut sized.

Flowering: Mid-April to late July.

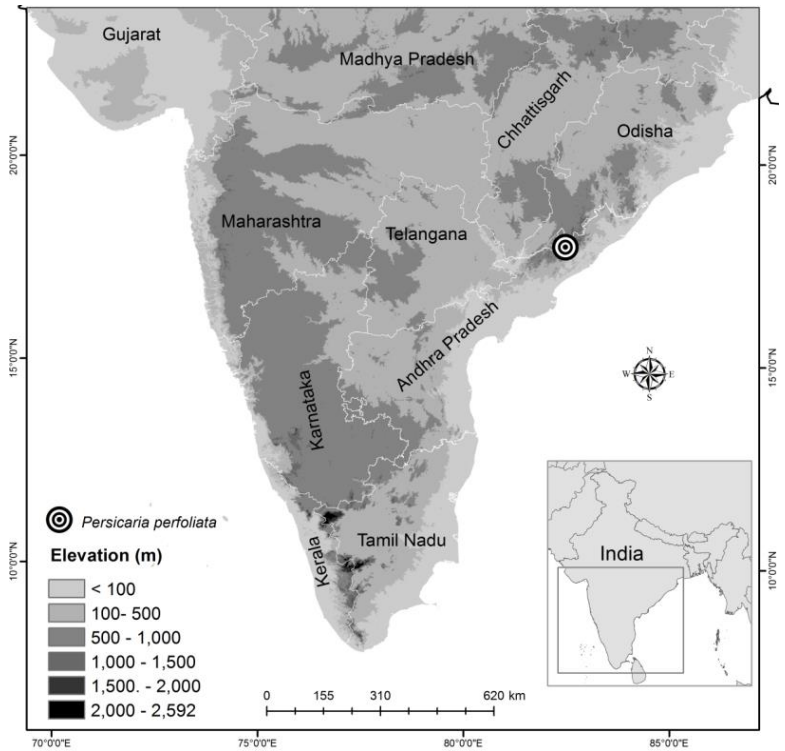

Figure 1. Location map of reporting site of *Persicaria perfoliata* (L.) H. Gross.

Common names: Devil's-tail or giant climbing Asiatic tearthumb, mile-a-minute weed.

Local name: Chepamullu kura (Telugu)

Uses: Fruits are edible (He *et al.* 1984) also used as herbal medicine (He *et al.* 1984, Yang & Kim 1993). In the present study investigations showing that local tribes are being used as a leafy vegetable.

Identification of taxon: After our critical examination and perusal of literature and web sources these specimens were identified as *Persicaria perfoliata* (L.) H. Gross owing to the following distinct features: the presence of short prickles on stem and petioles, leaf surface glaucous, faintly veined, leaves are peltate, triangular, leaf bracts round, perfoliate. Stem very thin, scandent, green in color later turn into dark pink. Inflorescence capitates, flowers creamy greenish white in color. Perianth is accrescent and becomes fleshy while fruiting. Fruits are blue, seeds are round and black.

Specimen examined: INDIA, Andhra Pradesh, District Visakhapatnam, Kantavaram village, Paderu hills. 25.07.2014, *J. Prakasa Rao* 20490 (AUH).

Site description: The Eastern Ghats are discontinuous hill ranges in peninsular India and geographically older than the Himalayas and the Western Ghats (Abe *et al.* 2013, Reddy *et al.* 2014) extending over 1750 km with average width of about 30’N latitude°05’ to 22° 100 km and extends from 10 50’E longitude°23’ to 86° and 76. Altitude ranges between 100–1572 (Reddy *et al.* 2014) Due to high elevation and rainfall, the valleys have luxuriant habitats consisting of evergreen, semi-evergreen, moist deciduous, dry deciduous, dry evergreen and thorn forests. (Reddy *et al.* 2014). However, the Eastern Ghats region is relatively under-explored. Among the Eastern Ghats, Visakhapatnam hills are one of the ecologically sensitive and biologically rich regions (Rao *et al.* 2015) with strict global endemics like *Argyreia arakuensis* Balakr, *Phyllanthus narayanaswamii* Gamble,

Argyreia srinivasanii Subba Rao & Kumari, *Bupleurum andhricum* Nayer & Banerji, *Kalanchoe cherukondensis* Subba Rao & Kumari, *Leucas mukherjiana* Rao & Kumari and *Ophiorrhiza chandrasekharanii* Rao & Kumari (SubbaRao & Kumari 2002). Several plant species are being reported from the Eastern Ghats. Rao *et al.* (2015) have reported *Balanophora fungosa* as new distributional record for the flora of Andhra Pradesh and *Achyranthes longifolia* as a new record for Indian flora (Rao *et al.* 2016). The study is proven that there is a need to conduct extensive botanical explorations in the Eastern Ghats.

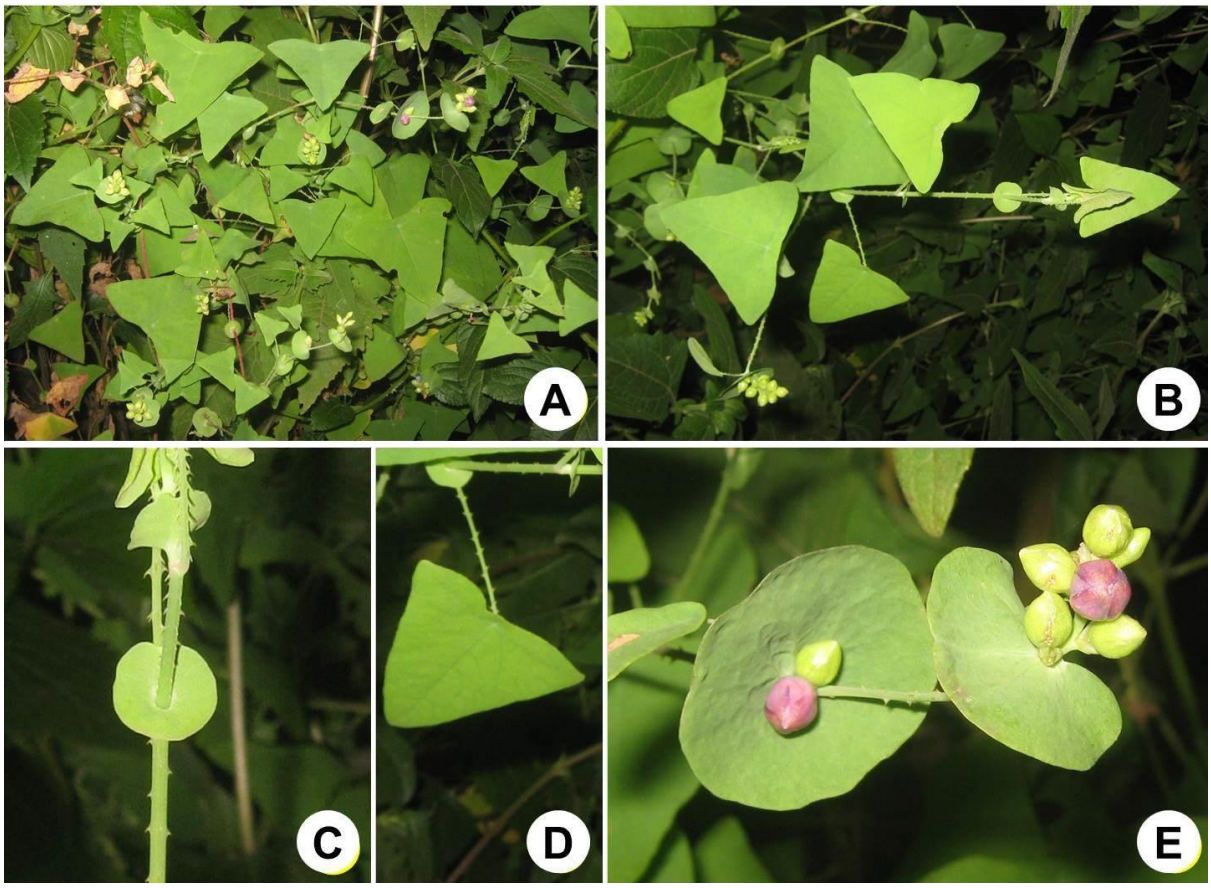

Figure 2. *Persicaria perfoliata* (L.) H. Gross: **A,** Habit; **B,** Young branch; **C,** Node is showing perfoliate ocrea and sprickles on both stem and petiole; **D,** Leaf; **E,** Fruiting.

Habitat and plant communities: *Persicaria perfoliata* is growing along the road sides where moist soils are available with less tree cover. However, we recorded scattered trees, understory and herbaceous diversity of present habitat and details are presented below.

Ageratina adenophora, Bidens pilosa, Chromolaena odorata, Lantana camara, Chrysopogon aciculatus, Clematis gouriana, Cissampelos pareira, Rubia cordifolia, Stemona tuberose, Smilax zeylanica and *Zingier roseum* are the major herbaceous associates of the species.

Indigofera cassioides, Rubus ellipticus, Zanthoxylum armatum, Solanum torvum, Cipadessa baccifera, Colebrookea oppositifolia, Pogostemon benghalensis and *Barleria strigosa* are main shrubs while, *Diospyros melanoxylon, Phyllanthus emblica, Alstonia venenata, Terminalia chebula, Syzygium* sp., *Ttrichilia connaroides, Gardenia latifolia, Pittosporum nepalense, Callicarpa tomentosa* and *Mallotus philippensis* are the tree associates of the species in the Eastern Ghats

CONCLUSION

Persicaria perfoliata is a new addition to the flora of the Eastern Ghats. This species is growing very well at the higher altitudinal ranges of Paderu hills. *P. perfoliata* is reported as a weed in USA, Mexico and other adjoining countries. Although we observed very few individuals growing normally in degraded forest areas of present habitat. However, this species has the potential to grow even in higher altitudes and may suppress native tree regeneration.

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