New distributional record of *Alysicarpus rugosus* (Willd.) DC. from the state Odisha, India

Abstract

A wild habitat of *Alysicarpus rugosus* (Willd.) DC. is reported for the first time for the flora of Odisha from Rourkela Forest Division. A detailed description with nomenclature, habitat, associated species and photographs are provided for easy identification in the field.

Keywords: Fabaceae, new addition, shrub

Introduction

Alysicarpus Necker ex Desvaux is a genus of a massive family Fabaceae and member of the tribe Desmodieae, Distribution of 31 species of this genus is known globally (Lewis et al 2005; Subramaniam 2017). About 19 species of this genus is reported so far from India (Gholami and Pandey 2016; Subramaniam 2017; Pokle 1999). During a floristic expedition, the research team found the species of *Alysicarpus* spp. at Kansbahal, Rourkela Forest Division, Odisha. After a detailed study on the genus *Alysicarpus* species of India with herbarium specimens and relevant literatures, it has been concluded that the species is *Alysicarpus rugosus* (Willd.) DC. This species is a tropical or sub-tropical species distributed in South Africa, Kenya, South America to South US, North Australia, China, Malaysia, Taiwan, Thailand, Japan, India, Pakistan, etc. In India, 18 species of this genus have been reported (Gholami and Pandey 2016; Gholami et al. 2017; Coker et al. 1914; Krishna et al. 2014; Kurmi 2023). Out of these, seven are endemic. In 2019, *Alysicarpus bhuibavadensis,* a new species has been reported from Western Ghats which adds to total 19 species in India and 31 species all over the world (Tyagi et al. 2019). 3 species have been reported from Thailand (Leeratiwong er al. 2017), 4 species from South Africa (Schrire and Hennessey 1984). *Alysicarpus rugosus* is distributed in Indian states like Andhra Pradesh, Karnataka, Tamil Nadu, Telangana, Rajasthan, Maharashtra, Uttarakhand, Himachal, Assam, Gujarat, Madhya Pradesh and Uttar Pradesh (Deepa et al. 2023; Tyagi et al. 2019; Njarui et al. 2004; Dalavi et al. 2021; Gandhi et al. 2011; Baro and Borthakur 2017; Dhami et al. 2023). It has been reported from semi-arid regions of Kenya. The species is native

to tropical countries like South Africa and Asian countries like China, India, Nepal, Pakistan, Myanmar, Thailand, Indonesia, etc (Basir et al. 2018; Dalavi et al. 2021) In Taiwan, this legume is gradually naturalized (Peng and Chaw 1986).

Taxonomic treatment

***Alysicarpus rugosus* (Willd.) DC.,** Prodr. 2:353(1825); *Fabricia rugosa* (Willd.) Kuntze Revis. Gen. Pl. 1:182(1891); *Hedysarum rugosum* Willd. Sp. Pl., ed. 4. 3: 1172 (1802).

Description: It is an erect, upright annual shrub. Stem pilose or glabrous, cylindrical that extends up to 2.4m tall, branched at the base. Leaves alternate, simple, obovate to elliptical, arise from every internode, mostly unifoliolate 1-8 x 0.2-2.5 cm, abaxial surface glabrous, marked with slightly 5-7 pairs of slightly arched veins, adaxial surface pubescent with a network of fine reticulation, petiole 3-9 mm long, two papery lanceolate stipules at the base 5mm long. Inflorescence axillary, simple or branched, terminal cluster, dense to lax, rachis 3-20 cm long, pedicels 2-5 mm long. Flower 5 mm long, calyx finely pubescent, divided into 5 peaks, corolla upper standard petal orange yellow 6-7 mm long, lower keel and a pair of wings petal red or dark pink to purple, 10 stamens, 9 filaments folded, Calyx 6-9 mm long, lanceolate, minutely ciliate. Fruit pods 5-12 mm long, 3-5 articulated segments, each segment with one seed. Seeds oblong 1.2 mm long (Figure 1).

Phenology: Flowering and Fruiting from November to April.

Distribution: Andhra Pradesh, Karnataka, Tamil Nadu, Telangana, Rajasthan, Maharashtra, Uttarakhand, Himachal, Assam, Gujarat, Madhya Pradesh, Uttar Pradesh and Odisha (Present collection).

Habitat: This shrub is found in dry areas near roads, grazing grounds, valley forest, etc. in association with *Ageratum conyzoides* L., *Anisomeles indica* (L.) Kuntze, *Senna tora* (L.) Roxb., *Cenchrus pedicellatus* (Train.) Morrone, *Sida cordifolia* L., *Aeschynomene americana* L., *Alternanthera sessilis* (L.) DC., *Mimosa pudica* L., (Plate 1) grasses and sedges.

Figure 1: *Alysicarpus rugosus*: a) Flower b) Leaves c) Fruits d) Stem e) Inflorescence

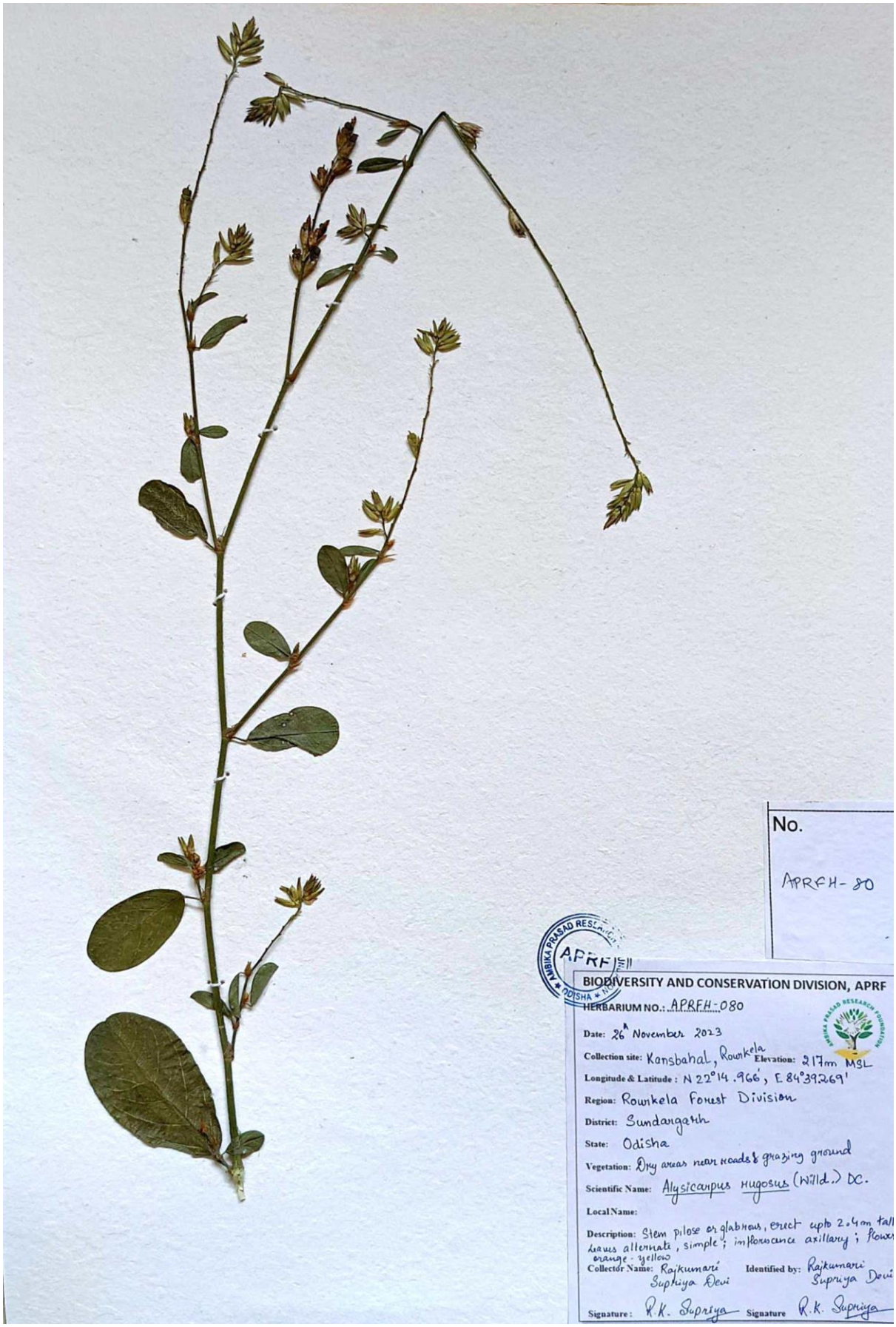

Figure 2: Herbarium specimen of *Alysicarpus rugosus*

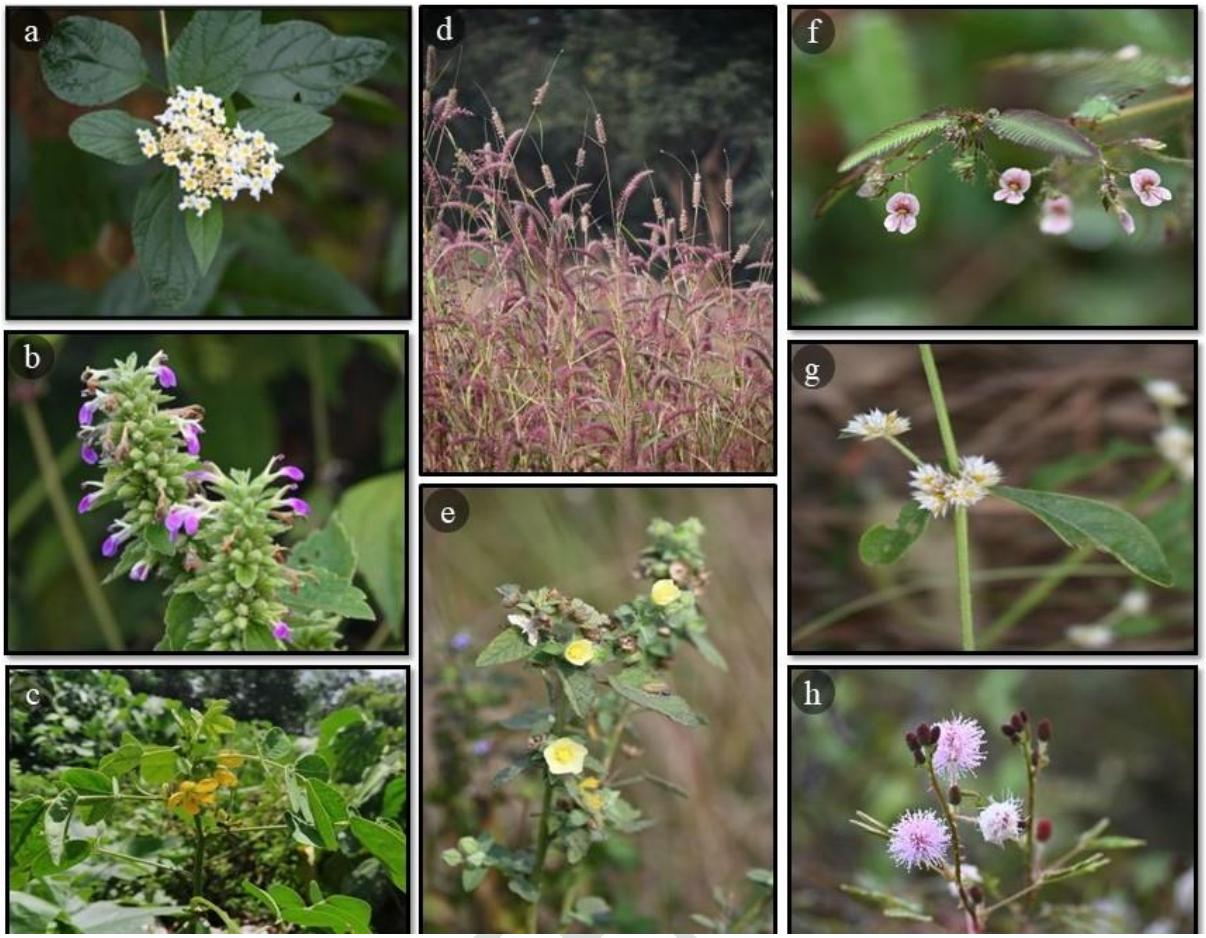

Plate 1: Associated plant species of *Alysicarpus rugosus*: a) *Ageratum conyzoides*, b) *Anisomeles indica* c) *Senna tora* d) *Cenchrus pedicellatus* e) *Sida cordifolia* f) *Aeschynomene americana* g) *Alternanthera sessilis* h) *Mimosa pudica*

Specimen examined: India, Odisha, Sundargarh district, Rourkela Forest Division, Kansbahal, N22°14.966', E84°39.269' elevation 217 m, 26th November 2023. R.S. Devi 080 (APRFH) (Figure 2).

Note: *A. rugosus* is so far not reported from any part of Odisha. In 2017, Sivaraj and his Coworkers documented an ethnic aspect of medicinal plants wealth of Eastern Ghats where Odisha lies in the Northern part of Easten Ghats. The documentation has not specified the study area or the local communities and tribal people working ethnobotanical information. The larger stretch of Eastern Ghats viz. Chhattisgarh, Andhra Pradesh, Tamil Nadu and Karnataka mainly belong to the southern part of India and the authors of the said documentation belong to Southern India. The authors therefore assumed that the species has not been collected or sighted from Odisha (Sivaraj et al. 2017).

Conclusion:

The study concluded that *A. rugosus* is a new addition to the floral wealth of Odisha state, India.

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