



## *Asystasia intrusa* (Forssk.) Blume (*Acanthaceae*): A new Addition to the Flora of Odisha, India

Nabin Kishore Jena<sup>1\*</sup>, Ranindra Kumar Nayak<sup>2</sup>

<sup>1</sup> Department of Botany, Fakir Mohan University, Balasore, Odisha, India

<sup>2</sup> Department of Environmental Science, Fakir Mohan University, Balasore, Odisha, India

### Abstract

*Asystasia intrusa* (Forssk.) Blume (*Acanthaceae*) has a native range in different regions of the globe including tropics & South Africa to Arabian Peninsula, Comoros, Madagascar. It is a scrambling annual or subshrub and grows primarily in the seasonally dry tropical biome. *Asystasia intrusa* (Forssk.) Blume, has been recently found naturalized in Dhobasila region of Balasore, Odisha and the identity of the taxon found to be new distributional record to the flora of Odisha. For better identification, detailed description as well as photographs of stereo microscopic view of all plant parts are provided.

**Keywords:** *Asystasia*, *Acanthaceae*, new addition, Coastal Odisha, India

### Introduction

The family *Acanthaceae* has 191 genera and 4900 species world-wide (Manzitto-Tripp *et al.*, 2021) [1]. In India the family is represented by 352 species under 44 genera (Karthikeyan *et al.*, 2009) [2]. Similarly, in Odisha the family has 29 genera and 75 species (Saxena & Brahmam, 1995) [3]. The members of the family are distributed World-wide in the tropics and subtropics.

The genus *Asystasia* was first enumerated by Blume in the year 1826 (POWO 2025) [4]. The genus *Asystasia* Blume (*Acanthaceae*) has about more than 70 species, distributed in the Old World (Mabberley, 2017) [5]. Scrutiny of the relevant literature (Anderson, 1867-1869; Karthikeyan *et al.*, 2009) [2, 6] and critical examination of the specimens and type of *Asystasia gangetica* helped the author to recognize it as a new species which is described and illustrated here. *Asystasia* is represented by a single species *Asystasia gangetica* var. *gangetica* in Odisha. It has a broad range of variability. Some elegant variants are used as garden ornamentals.

The genus includes herbs or shrubs with leaves entire, sometimes with undulate margin. Flowers arranged in a lax to dense spikes or racemes. Calyx with 5 subequal lobes. Corolla funnel-shaped tube, lower part of corolla tube cylindrical and upper part inflated, 5 subequal lobes. Stamens 4; didynamous, anthers 2-celled. Capsule 4-seeded. Although several floristic and similar studies were conducted in the coastal districts of Odisha (Sahoo *et al.*, 2014; Satpathy & Noor, 2022; Mohanty & Barik, 2018; Pal *et al.*, 2022; Muduli & Dhall, 2024; Mohanty *et al.*, 2025) [7, 8, 9, 10, 11, 12], specific literature regarding family *Acanthaceae* has not been documented. While exploring the diversity of family *Acanthaceae* in the coastal districts of Odisha, the author found an interesting specimen. After detailed description and critical observation by compiling with previously available literature (Hooker, 1872-1897; Gamble, 1884-85; Haines, 1925; Mooney, 1950; Govaerts, 1995; Saxena & Brahmam, 1995; Hsu *et al.*, 2005; Tandyekkal *et al.*, 2019; Lekshmi & Kumar, 2023) [3, 13, 14, 15, 16, 17, 18, 19, 20] the identity of the taxon was found to be *Asystasia intrusa* (Forssk.) Blume which is a new addition to the flora of Odisha.

### Systematic Position

Kingdom	-	Plantae
Division	-	Tracheophyta
Class	-	Magnoliopsida
Order	-	Lamiales
Family	-	<i>Acanthaceae</i>
Genus	-	<i>Asystasia</i>
Species	-	<i>intrusa</i>

### Description

*Asystasia intrusa* (Blume) Bijdr. Fl. Ned. Ind.: 796 (1826), *Asystasia gangetica* (L.) Anderson subsp. *micrantha* (Nees) Ensermu in Proc. 13 Plenary Meet. AETFAT, Zomba 1: 343. 1994. Hsu *et al.* Taiwania. 50(2), pp.117-122. 2005. *Asystasia gangetica* (L.) T. Anderson var. *krishnae* Dhruvan, Pandur. & Mohanan, var. nov. Plant terrestrial; Erect Straggling annual herb, Stem swollen above node, 4-angled, procumbent below. Leaves opposite, glabrous or sometimes possess minute hairs, dense on veins; petiole up to 5 cm long; lamina ovate broadly elliptic, largest 2–11.5 × 1–6 cm; apex commonly rounded, base cordate; margin entire. young leaves ovate, mature ones ovate elongated with lamina decurrent to petiole. Flowers smaller (< 2 cms), petals white, lower dorsal lip with purple marks, corolla tube cylindrical below and inflated above. Bracts 3, purple, bracteole 0, calyx tubular, sepals green, 5, stamens 4, didynamous (longer ones-8 mm, smaller ones 6 mm), a purple mark on sides of anther, ovary hirsuted, fruit capsule, seeds 4, Seeds tuberculate with irregular outline or smooth and glabrous with small wart like projections. Flowering-Fruiting- October-March.

**Specimen examined:** Dhobasila, Mitrapur road Balasore, Odisha, India.

**Conservation Status:** NE (Not Evaluated).

Previously known distribution: Kerala, Maharashtra, Tamil Nadu.

### Acknowledgement

The authors are thankful to the head of the P.G Department of Environmental Science and Coordinator of P.G department of Botany, Fakir Mohan University, Balasore, Odisha for providing necessary facilities to Conduct the research.

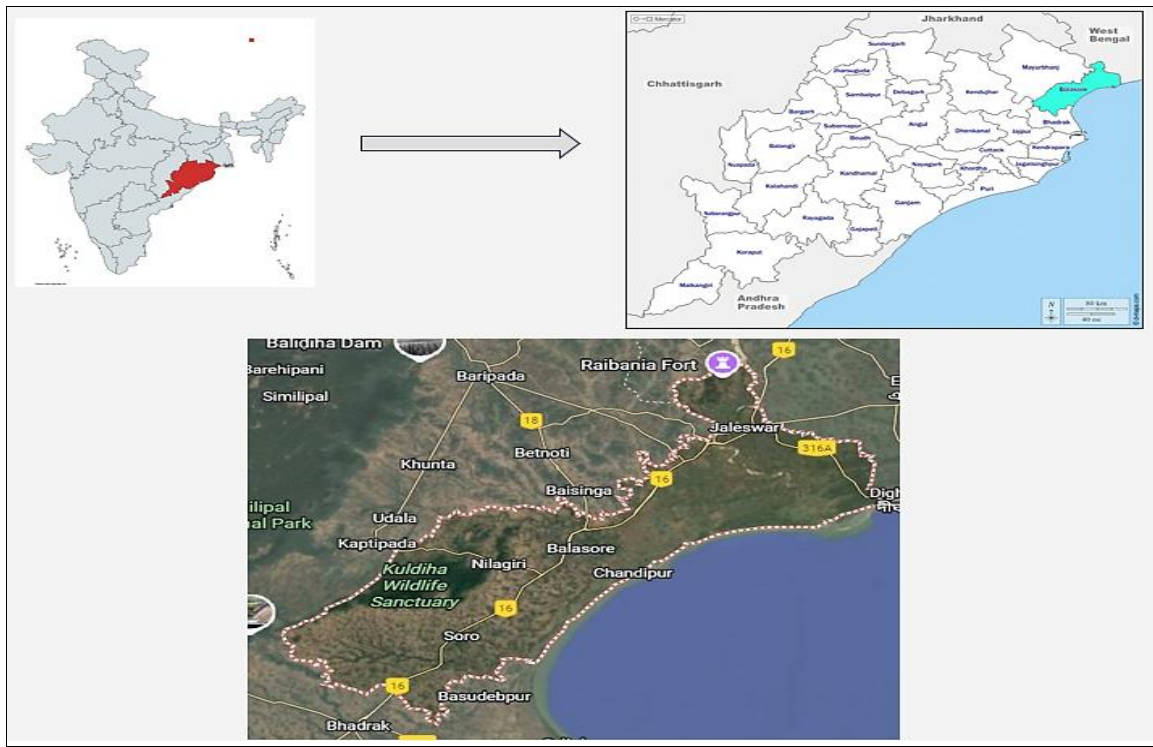
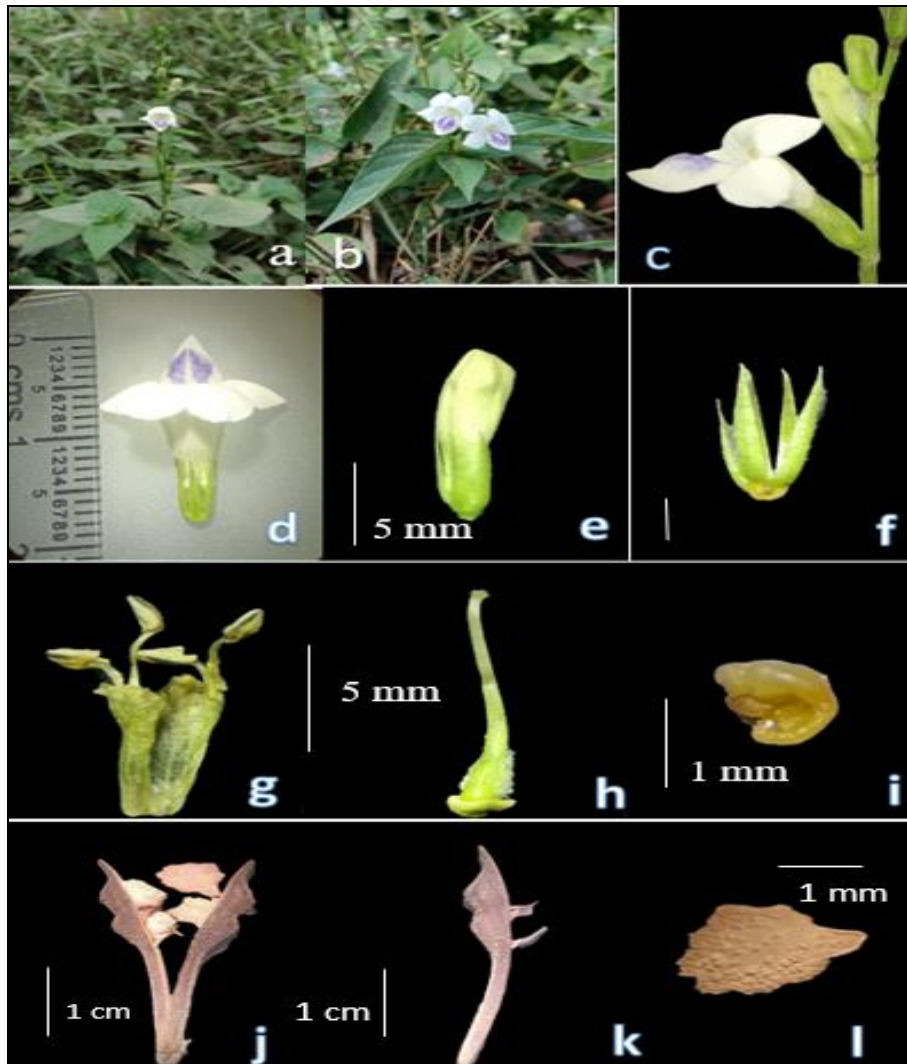


Fig 1: Map of study Area

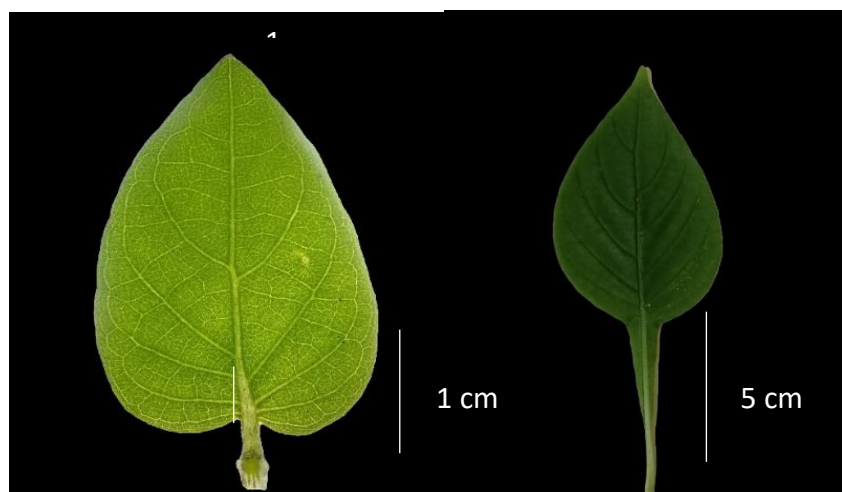


Fig 2: Photograph representing the habit & habitat of the plant



**Fig 3:** a, b. Plant in natural habitat, c. Inflorescence spike, d. single flower, e. bud, f. sepals, g. stamens, h. carpel, i. nectariferous disc, j. fruit, k. capsule exhibiting retinacula, l. seed

**Leaf Morphology**



**Fig 4:** a. young leaf, b. matured leaf

**References**

1. Manzitto-Tripp EA, Darbyshire I, Daniel TF, Kiel CA, McDade LA. Revised classification of *Acanthaceae* and worldwide dichotomous keys. *Taxon*,2022;71(1):103-53.
2. Karthikeyan S, Sanjappa M, Moorthy S. Flowering plants of India. Dicotyledons: vol. 1. *Acanthaceae-Avicenniaceae*. Botanical Survey of India, 2010.
3. Saxena HO, Brahmam M. Flora of Orissa, Orissa Forest Development Corporation, Bhubaneswar, 1995, 3.

4. POWO. "Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew, 2025. Published on the Internet; <https://powo.science.kew.org/>
5. Mabberley DJ. Mabberley's Plant-Book: A portable dictionary of plants, their classifications and uses. (4<sup>th</sup> edition). Cambridge University Press, Cambridge, 2017
6. Anderson T. List of *Acanthaceae*, cultivated in the Royal Botanical Gardens, Calcutta. Journal of Agricultural and Horticultural Society, 1867–1869:3: 265-289.
7. Sahoo RC, Sahu D, Misra MK. Angiosperm Diversity of Sandy Coast of Balasore District, Odisha, India. Nelumbo, 2014:1:89-123.
8. Noor N, Satapathy KB. Leafy vegetable diversity and their ethnomedicinal uses against gastrointestinal disorders in the Balasore district of Odisha, India. Journal of Applied Biology Biotechnology, 2023:11(2): 259-267.
9. Mohanty S, Barik KL. Floristic Composition of a Grassland Community of Balasore District in Odisha. Int. J. of Scientific Res. Review, 2018:7(7):410-6.
10. Pal B, Tudu S, Sahu SC. Floral diversity of Panchalingeshwar: A sacred hill of Odisha, India. Nelumbo, 2022:31:119-35.
11. Muduli B, Dhall S. Tree diversity and ethnomedicinal plants for the benefit of the inhabitants of Remuna Block Balasore District, Odisha. Journal of Medicinal Plants Studies, 2024, 12.
12. Mohanty KP, Patra S, Paul RR, Sahoo KP. Botanical remedies for livestock: A quantitative ethnoveterinary study in the Northeastern coastal region of Odisha, India. Acta Biologica Slovenica, 2025:68(3):113-130.
13. Hooker JD. The flora of British India. L. Reeve, 1885.
14. Gamble JS. Flora of the Presidency of Madras. West, Newman and Adlard, 1884-1885.
15. Haines HH. The Botany of Bihar and Orissa, I-VI, Botanical Survey of India, Calcutta, 1921- 25.
16. Mooney HF. Supplement to the botany of Bihar and Orissa. Catholic, Ranchi, 1950.
17. Govaerts, R. World Checklist of Seed Plants, 1995:1(1, 2):1-483, 529.
18. Hsu T, Chiang T, Peng J. *Asystasia gangetica* (L.) T. Anderson subsp. *micrantha* (Nees) Ensermu (*Acanthaceae*), a newly naturalized plant in Taiwan. TAIWANIA-TAIPEI-. 2005;50(2):117.
19. Tandyekkal D, Pandurangan AG, Mohanan N. *Asystasia gangetica* var. *krishnae* (*Acanthaceae*): A new variety from Kerala, India. Rheedeia, 2019:29(2):174-7.
20. Deepa Lekshmi VS, Anil Kumar VN. Revising the taxonomic status of *Asystasia gangetica* var. *Krishnae* Tandyekk., Pandur. N. Mohanan (*Acanthaceae*). Feddes Repertorium, 2024:135(2):133-9.