



Physalis Pruinosa (Solanaceae): A new addition to the Flora of Chhattisgarh, Central India

Ram Kumar Rajwade,^{id} Motilal Patel,^{id} and Devendra Kumar Patel*^{id}

Department of Botany, Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, Chhattisgarh, 495009, India

Abstract

Koni village is situated in the Bilaspur Tehsil of the Bilaspur district, Chhattisgarh. It lies between 21.977978° N and 82.22908° E. It is located approximately 5 km from the tehsil headquarters in Bilaspur, Chhattisgarh. Extensive field studies were carried out from locations across July 2025 to September 2026. In this study, we present another species of *Physalis* L. (*Physalis pruinosa*) L., a new addition to the flora of the region of Chhattisgarh, central India. The short description, based on the study of fresh specimens, includes the exact locality, phenology, and color photo plate of the plants, along with their distribution.

Keywords: Solanaceae, Chhattisgarh, new addition, *Physalis* L. *Physalis pruinosa* L.

Introduction

The family Solanaceae belongs to the order Solanales; the family has about 2,700 species worldwide under 98 genera [4]. The genus *Physalis* L. of the family is native to America and comprises about 92 accepted species distributed worldwide [6]. The genus *Physalis* L. comprises 79 accepted species [6], the native range of this genus is in the tropics and subtropics. *Physalis* L. is represented by about eight species in India [1], of which about one species occurs in the central Indian state [1], [7], [11]. Central India has comparatively fewer records: earlier accounts reported about only one species [3], [11]. Regional checklists and recent surveys for Chhattisgarh showed similar results.

A recent list by Shukla [7] reported a *Physalis* species (*P. angulata* L.) for the state, revealing inconsistencies among existing inventories and underscoring incomplete floristic knowledge for Central India and Chhattisgarh, thereby highlighting the urgent need for intensified field surveys and systematic taxonomic revision.

Material and Methods

Study area and identification

Koni is situated in the north-west part of Bilaspur in Bilaspur Tehsil and Bilaspur district, Chhattisgarh, India. It lies between 21.977978° N to 82.22908° E. It is located approximately 5 km from the tehsil headquarters in Bilaspur and around 6 km from the district headquarters in Bilaspur, Chhattisgarh, India. During extensive field surveys conducted from July 2025 to September 2026 in Koni and its adjoining areas of Bilaspur district, Chhattisgarh, an interesting plant species of the genus *Physalis* L. (Solanaceae) was collected.

Representative specimens were collected, processed, and mounted on herbarium sheets. Microphotographs were obtained using a digital DSLR camera (Canon 700D). Specimens were identified by comparison with diagnostic descriptions and keys in primary floras and monographs and by consulting regional treatments and recent taxonomic accounts [2], [4], [5], [7], [8], [9], [10] and [11].

Nomenclature followed is as per POWO [6]. The voucher specimen was deposited at the Department of Botany, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh, India.

Results and Discussions

The newly obtained specimens from the Koni area, Bilaspur, Chhattisgarh were recognized as *Physalis pruinosa* L. after being carefully compared to diagnostic descriptions and local treatments. The produced voucher information was cross-checked using internet nomenclature tools and established taxonomic references. This is the species' first known addition from Chhattisgarh, India, and a significant expansion of the taxon's distribution, enhancing Chhattisgarh's flora.

In terms of biogeography, this record closes a distributional gap between previously identified populations and raises the possibility that Chhattisgarh, India, contains further, undiscovered variety. In terms of taxonomy, the result emphasizes the necessity of ongoing field surveys in conjunction with close examination of morphology and nomenclature in order to determine regional species limits.

Key to species of *Physalis* L. in Chhattisgarh:

1a. Plants sparsely hairy to glabrescent, without glandular hairs; fruiting calyx ovoid, longer than broad, gradually narrowed at tip, with purple network of veins..... *P. angulata*

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Devendra Kumar Patel | dplantscience@yahoo.co.in

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1b. Plants densely hairy mixed with glandular hairs, Stems and leaves villous mixed with stalked glands, leaves light green, prominently dentate from middle, corolla with pale green spots, anthers yellow, fruiting calyx longer than broad, gradually acuminate at apex, berry grey green when mature..... *P. pruinosa*

Taxonomic descriptions:

Physalis pruinosa L., Sp. Pl. 184. 1753 (Plate 1&2).

Annual, erect herb; up to 2 feet long. Stem cylindrical with long glandular hairs. Leaves simple, alternate, sparsely hairy all over above, hairy mainly at nerves below, 15–18 × 10–13cm, broadly ovate, apex acute to shortly acuminate, base cordate, margin sinuate dentate, often with unequal sides. Petiole 0.3–15×0.1–0.5cm, hairy, slightly grooved above. Inflorescence cyme, Flowers solitary, axillary, 1×1cm, creamy greenish white, hairy. Pedicel ca. 2.5 × 0.5cm, hairy. Calyx campanulate, hairy, ca. 1×0.1 cm, lobes 5, subulate, longer than tube, lanceolate, hairy. Corolla yellowish white, campanulate, ca. 5.1×1cm across, similar to leaf shape in outline (antero-posteriorly), marked with 5 green spots at the throat. Stamens 5, yellow, filaments dimorphic, ca. 0.2×0.1/0.6×0.1cm, anther ca.0.2cm, oblong, basifixed. Ovary ca. 0.6×0.1cm, ovules many, Style including stigmatic region ca. 0.4×0.05cm, gradually thick towards top. Fruiting calyx large, 3–4.5×2–2.5cm, inflated, strongly nerved. Fruit a berry, 1×0.4cm. Seeds many.

Flowering & fruiting: July –December.

Specimen examined: India: Chhattisgarh: Bilaspur dist., Koni (22.131302° N, 82.123673° E; 274 m AMSL): 02.09.026 (Flowering); Ram Kumar Rajwade, Motilal Patel & Devendra Kumar Patel [RKPP-002; Herb. of Dept. of Botany, Guru Ghasidas Vishwavidyalaya, Bilaspur, India].

Distribution: India: Andhra Pradesh, Chhattisgarh (Current study), Gujarat, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, Uttarakhand and Uttar Pradesh.

Native to: Argentina (Northeast-Northwest), Costa Rica, El Salvador, Guatemala, Honduras, Mexico (Central, Gulf, Northeast, Northwest, Southeast, Southwest), Nicaragua, Paraguay, Venezuela, POWO [6].

Introduced into: Bolivia, Brazil Northeast, Ogasawara-shoto, POWO [6].



Plate 1: *Physalis pruinosa* L. A- Habit; B-D - Inflorescence; E-G - Close view of Flower; H-J- Immature and mature fruits.

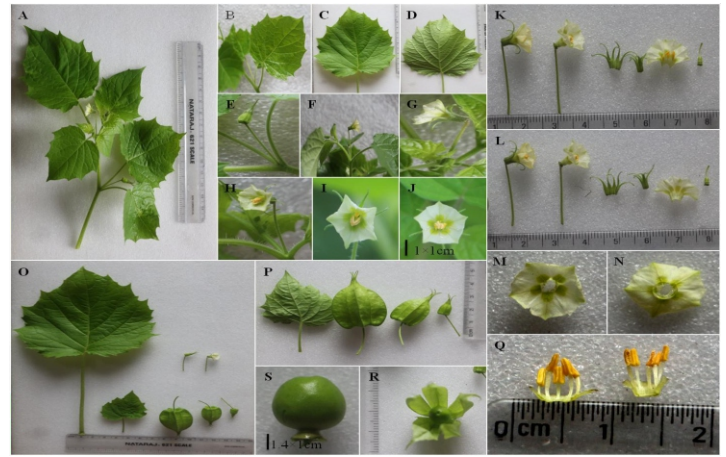


Plate 2. *Physalis pruinosa* L. A- A twig; B-D - Leaves-Dorsal & Ventral View; E-H-Close view of Inflorescence; I-J- Close view of Flower; K-L- floral parts; M-N- Dorsal & ventral view of Corolla; O-P- Leaves, floral buds, flower, immature & mature fruit; Q- Androecium-morphological variation; R- Fruit with Persistent calyx, fruit.

Conclusions

Deforestation, unchecked human activity, and frequent forest fires are the greatest human-caused threats to Bilaspur's plant life. These factors pose a threat of extinction to some local taxa in the Bilaspur District. As a result, prompt conservation action is required, including targeted population monitoring, fire control and restoration techniques, community-based awareness and stewardship programs, and protection of significant habitat patches.

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