



Cosmos caudatus Kunth (Asteraceae): A new distributional record for Gujarat flora

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Abstract

The present study reports the occurrence of *Cosmos caudatus* Kunth (Asteraceae) as a new distributional record for Gujarat, India. During floristic exploration of the Saputara hills and adjoining areas of Ahwa in Dang district, a good population of this species was recorded growing in moist open habitats, along roadsides and forest margins. Detailed morphological examination of the collected specimens, including characters of capitulum, ray and disc florets, and achenes, along with critical comparison with relevant taxonomic literature, confirmed its identity. A thorough review of available floristic literature and regional checklists indicates that there is no prior authentic record of this species from Gujarat. Therefore, the present report constitutes a new addition to the flora of Gujarat state. A brief description, phenological observations, ecological notes and photographic documentation are provided to facilitate its identification in the field, and a voucher specimen has been deposited in the departmental herbarium for future reference.

Keywords: *Cosmos caudatus*, Asteraceae, new record, Gujarat state

Introduction

The genus *Cosmos* Cav. comprises of about 40 species^[1] distributed mainly in tropical and subtropical regions of the Americas, particularly Mexico and Central America^[2]. The centre of diversity of *Cosmos* lies in Mexico, which harbors many endemic species^[3]. Members of the genus are widely cultivated as ornamental plants and some species have become naturalized in different parts of the world, including Asia and Africa^[4]. The genus belongs to the family Asteraceae, one of the largest families of flowering plants, characterized by capitulum inflorescence and composite flowers^[5]. *Cosmos* was traditionally classified based on morphological features such as achene structure, involucre bracts, and ray florets; however, recent molecular phylogenetic studies have supported its placement within the tribe Coreopsideae^[6]. Several species such as *Cosmos sulphureus* and *Cosmos caudatus* are commonly reported from tropical regions outside their native range, often as cultivated or naturalized taxa^[7]. In India, the genus is represented by a three species, primarily occurring as ornamentals or casual escapes, with sporadic reports from different states which are *C. sulphureus*, *C. bipinnatus* and *C. caudatus*.

The district Dang district is one of the tribal dominated regions of Gujarat state and is situated in the southern part of the state. The district encompasses the Saputara hills, representing the northernmost extension of the Western Ghats and is well known for its rich floristic diversity. The region has been explored by several plant taxonomists and floristic studies have revealed a high diversity of angiosperms including many rare, endemic and newly reported taxa^[9, 10, 11, 12, 13, 14, 15, 16, 17]. The present study was aimed to explore and document the Asteraceae diversity of the Gujarat. During field exploration of Saputara hills and adjoining areas of Ahwa in Dang district, a good population of an interesting herbaceous species was found growing along roadsides, forest margins and moist open habitats associated with grasses and other herbaceous taxa. The specimens were collected and processed following standard herbarium techniques^[8]. After critical examination of

morphological characters, including capitulum structure, ray and disc florets, and achene morphology, along with detailed comparison with relevant taxonomic literature^[9, 11, 12, 18], the specimens were identified as *Cosmos caudatus* Kunth.

Thus, the present collection from Saputara hills and adjoining areas of Ahwa in Dang district constitutes a new distributional record for the flora of Gujarat state. A brief description, phenological data, field notes and photographic documentation are provided here to facilitate easy identification of the species in the field. A voucher specimen has been deposited in the BARO herbarium for future reference.

Taxonomy

Cosmos caudatus Kunth in F.W.H.von Humboldt, A.J.A.Bonpland & C.S.Kunth, Nov. Gen. Sp., ed. fol., 4: 188 (1818); *Bidens artemisiifolia* var. *caudata* (Kunth) Kuntze in Revis. Gen. Pl. 1: 321 (1891); *Bidens caudata* (Kunth) Sch.Bip. In B.Seemann, Bot. Voy. Herald: 308 (1856).

Plate 2

Erect herb, 30–150 cm. Stem woody from base, terete, sparsely pubescent. Leaves pinnatisect, opposite, ovate-lanceolate, 4–9 cm, margins entire, acuminate, pubescent. Capitulescence corymb. Capitula radiate, 2.5 – 3 cm across. Involucres biseriata; phyllaries oblong-lanceolate, 7–10 mm, apices of outer acute and of inner obtuse. Ray floret ligulate, neuter, 8–15 mm, rose-pink. Disc floret tubular, bisexual, 8 – 16 mm, yellow. Anther articulated, apex acute and base subtentire, 1.8 – 2.1 mm. Style arm apex subulate, 1.6 – 2 mm. Cypsela ovate, 2.2 – 2.7 cm, beaked, with one central groove, glabrous or scabridulous. Pappus barbed awns, 0.5-1 mm.

Specimen: Gujarat: Dang, Saputara Hills, JJS 32, Dt. 23 January 2022 (20°46'07.75" N, 73°43'25.42" E, 487m).

Origin: Central America.

Associated Species: *Digitaria* sp., *Eragrostis tenella*, *Celosia argentea*, *Tridax procumbens*, *Oplismenus burmanii*, and *Haplanthodes tentaculatus*.

Flw-Fru: October - March.

Habitat: Roadside and hilly areas.

Distribution: Kerela, Tamil Nadu, Odisha, Assam, now from Gujarat.

Taxonomic Note: This plant resembles to *C. bipinnatus* but differs in leaflet shape. Leaflet is filiform in *C. bipinnatus* while it is lanceolate in *C. caudatus*.

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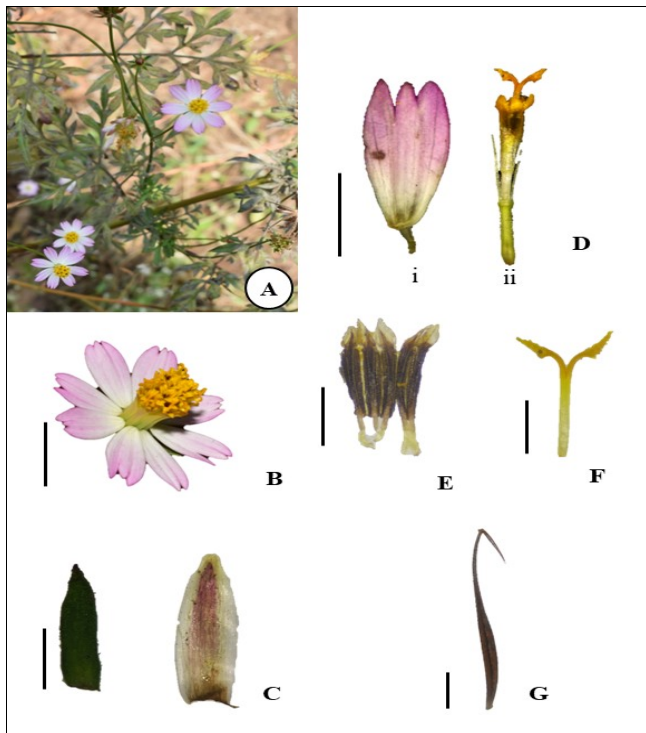


Plate 4.46 *Cosmos caudatus* Kunth **A**-Habit; **B**- Capitulum (bar= 2 cm); **C**- Phyllary (bar= 2 mm); **D**- Floret (bar= 5 mm); **E**- Anthers (bar= 1 mm); **F**- Style (bar= 2 mm); **G**- Cypsela (bar= 5 mm) (i=RF, ii=DF).

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