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Cover: A digital art of water birds of Noyyal River and its wetlands in Coimbatore District by Megha A. Kashyap.



Typhonium inopinatum Prain (Araceae): a new plant record to the flora of Uttarakhand, India

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The genus *Typhonium* Scott (Araceae) contains about 80 species distributed from India, southeastern Asia, to Australia (Mujaffar et al. 2013; Nguyen et al. 2022). In India, *Typhonium* genus is recorded from the following states and union territories: Andaman & Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Mizoram, Nagaland, Odisha, Puducherry, Punjab, Telangana, Tripura, Uttar Pradesh, Uttarakhand, and West Bengal (Mao et al. 2020; BSI 2024; India Flora Online 2024). The genus is represented by seven species, namely, *Typhonium bulbiferum* Dalzell; *T. blumei* Nicolson; *T. flagelliforme* (Lodd.) Blume; *T. gracile* (Roxb.) Schott; *T. inopinatum* Prain; *T. roxburghii* Schott; *T. trilobatum* (L.) Schott (Mishra 2018; Mao et al. 2020). Two species of *Typhonium* (*T. listeri* Prain and *T. diversifolium* Wall. ex Schott) have now been transferred to the genus *Sauromatum* while *T. foliolosum* (Schott) Engl. has been synonymized with *T. diversifolium* Wall. ex Schott. In Uttarakhand, two species of *Typhonium*: *T. roxburghii* Schott; and *T. trilobatum* (L.) Schott and three species of *Sauromatum* including *S. brevipes* (Hook.f.) N.E.Br.,

S. venosum (Aiton) Kunth, and *S. diversifolium* (Wall. ex Schott) have been recorded to date (Uniyal et al. 2007).

During recent botanical explorations in and around Dehradun Valley a few specimens of the genus *Typhonium* were collected from Chandrabani, Dehradun; Indian Institute of Technology, Roorkee and Gurukula Kangri University, Haridwar. After a comparison of reproductive parts with all the species reported from India, it was identified as *Typhonium inopinatum* Prain. This species has earlier been reported from the states of Andhra Pradesh, Bihar, Maharashtra (Bhandara District and Marathwada), Madhya Pradesh, Telangana, Uttar Pradesh, and West Bengal (Kumar et al. 2014; Rasingam et al. 2017; Sonule et al. 2019). No previous records of this species were found from the state of Uttarakhand (Osmaston 1926; Kanjilal 1928; Babu 1977; Gaur 1999; Uniyal et al. 2007; Agarwal 2017). This species is reported as a new record for the state of Uttarakhand.

Taxonomic description

Typhonium inopinatum Prain in King & Prain, J. Asiat. Soc. Bengal Pt. 2. Nat. Hist. 67: 301. 1898 & Bengal

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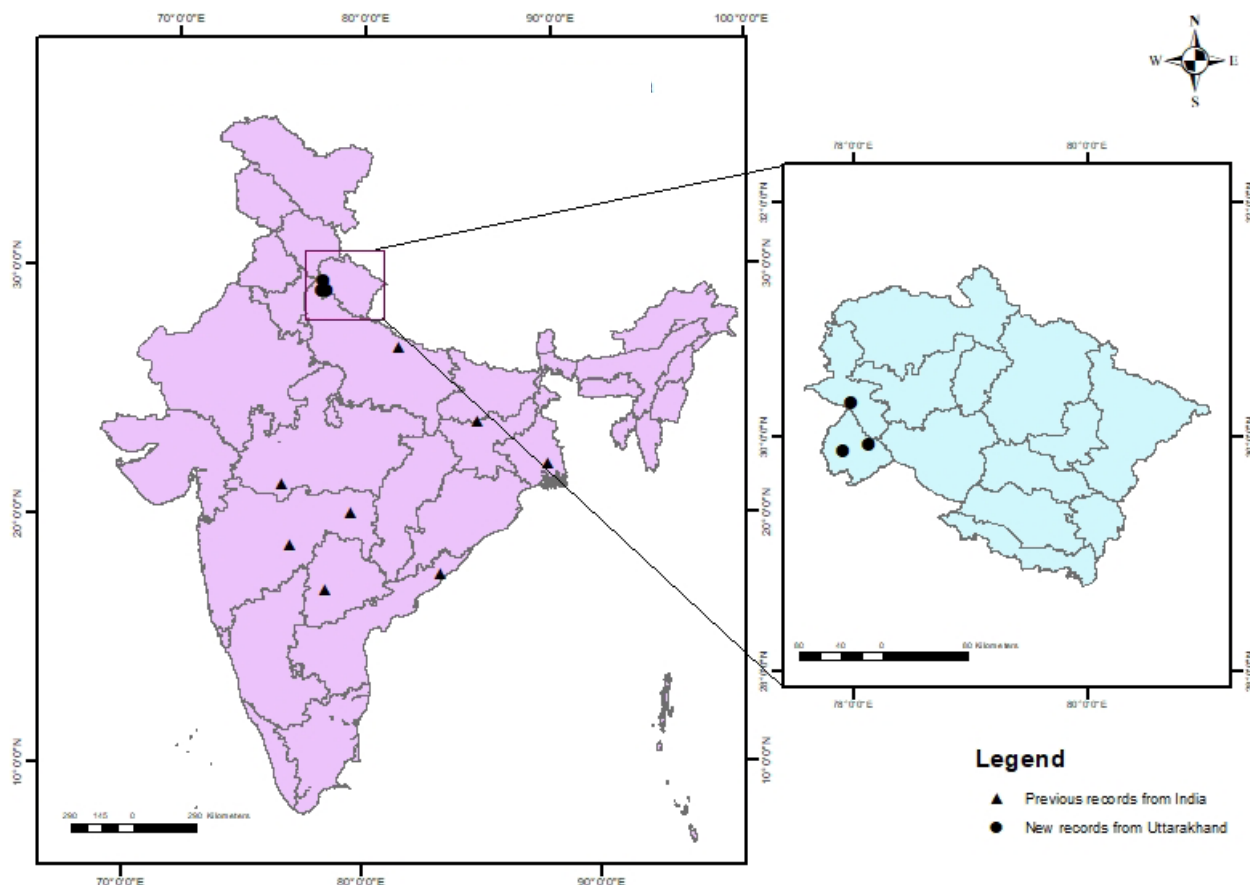


Figure 1. Records of *Typhonium inopinatum* Prain from India.

Pl. 1107. 1903; Engl. Pflanzenr. 73(IV. 23F): 116. 1920; Kumar et al. in Rheede 24(2): 120. 2014; Rasingam et al. in Indian J. Forest. 40(4): 401–402. 2017; Sonule et al. in Bioinfolet. 16(4): 242–243. 2019. *T. khandwaense* Mujaffar et al. Biosci. Disc. 4: 25. 2013.

Tuberous perennial herbs 10–45 cm tall; tubers globose, 1–3 × 0.8–1.5 cm; leaves 8–10, ovate varying to spear-shaped or triangular form, 5–14 × 4–10 cm; base hastate, acuminate at apex, margin entire, secondary veins 10–15 per side, petioles 15–30 cm long, green; inflorescence spadix, monoecious shorter than petioles, 1–2.5 cm. Spathe is broadly ovate to lanceolate, 8–10 cm long, 2–3.5 cm broad, limb brownish outside, greenish-brownish inside, margin entire, margin, acuminate, involute, recurved, and coiled apically. Spadix 4.3–9 cm long; pistillate flower at base, sterile ones in the middle, preceded by naked zone, followed by staminate flowers towards the apex and a terminal zone appendix. Both pistillate and sterile flower zones are enclosed by basal tubes of spathe. Pistillate zone conical, 3–3.5 mm long, greenish; flowers sessile, 1–1.5 mm long; ovary ellipsoid, 1–1.3 mm long, glabrous; style very short; stigma disc-

shaped, glabrous. Sterile flower zone yellow, 2–4.5 mm long; sterile flowers filiform, entire, decurved, each 2.5–4 mm long, partially covering pistillate flower zone. Naked zone 6–9 mm long. Staminate zone cylindric, 5–9 × 2–3 mm, pale yellow; flowers sessile, 0.5–1 mm long with 2 thecae; dehiscence by apical short slits or pores. Appendix 4–6 cm long, yellowish-brown (Image 1).

Life Cycle: *Typhonium inopinatum* Prain is a tuberous geophyte that is active for a short duration of 2 to 3 months. In Dehradun, the emergence of *Typhonium inopinatum* (Vegetative form) was observed during the first week of June; flowering was observed from the fourth week of June till the first week of October.

Habitat: In Dehradun *Typhonium inopinatum* Prain was found to be growing along the side of the Chandrabani main road and inside an empty plot under the canopy of *Syzygium cumini* (L.) Skeels, *Terminalia arjuna* (Roxb. ex DC.) Wight & Arn, *Mangifera indica* L., and *Monoon longifolium* (Soon.) B. Xue & R.M.K. Sanders, in association with *Laportea interrupta* (L.) Chew.

In IIT Roorkee it was seen growing along the margins

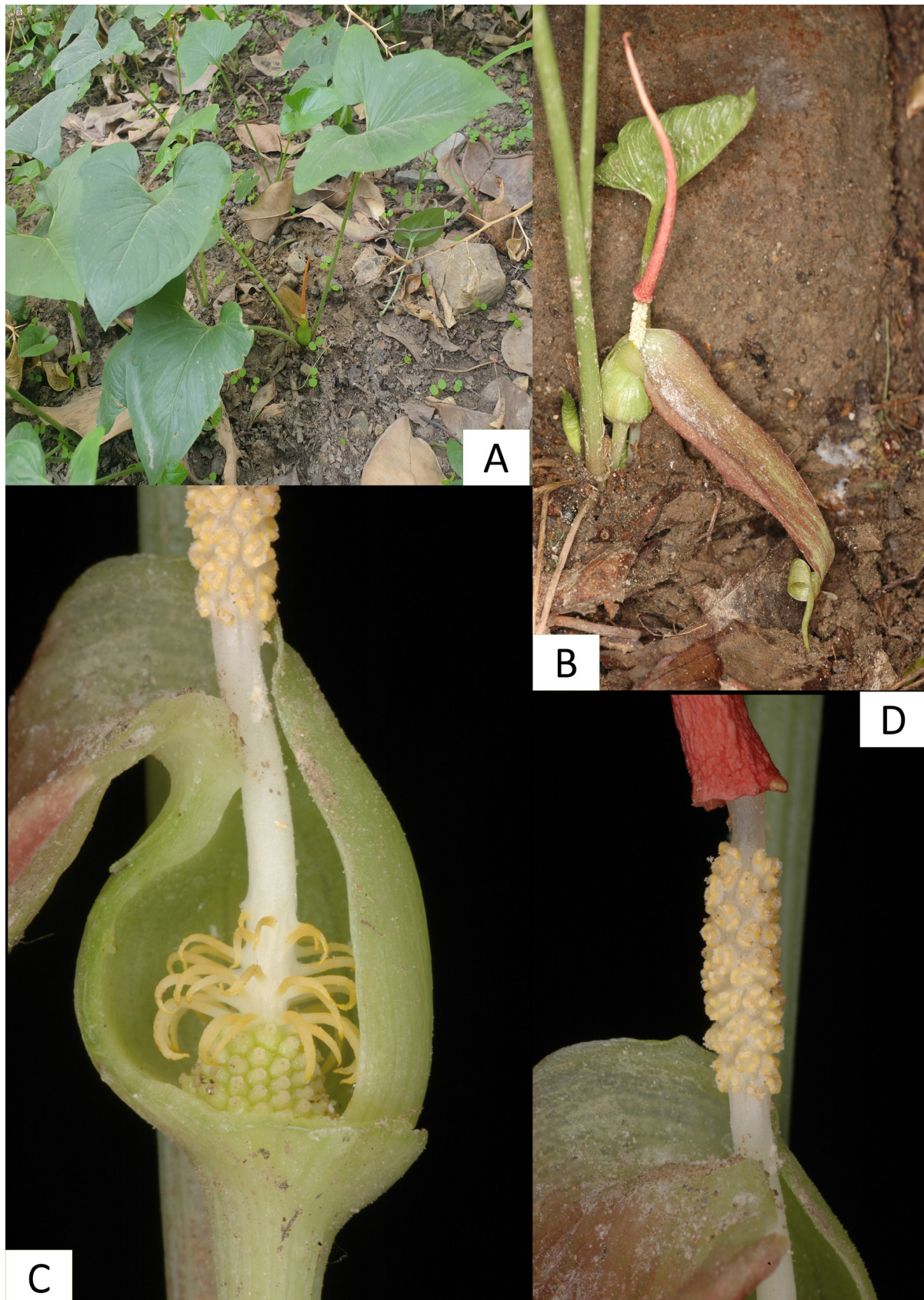


Image 1. *Typhonium inopinatum* Prain: A—Habit | B—Inflorescence | C— Female flower bottom, neutral flower middle, naked zone | D—Male flower and appendix. © Navendu Page.



Image 2. A—Lectotype of *Typhonium inopinatum* Prain collected by D. Prain from West Bengal | B—Lectotype of *Typhonium inopinatum* Prain collected by Haraukh from Bahraich, Uttar Pradesh.

of the football ground in association with *Mazus pumilus* (Burm.f.) Steenis, *Mimosa pudica* L., *Oplismenus burmanni* (Retz.) P. Beauv, and *Oxalis corniculata* L.

In Gurukula Kangri University it was found growing in front of the Zoology and Environmental Science Research Building in an open lawn associated with species such as *Cynodon dactylon* (L.) Pers., *Crinum asiaticum* L., *Mazus pumilus* (Burm.f.) Steenis, *Mimosa pudica* L., *Oplismenus burmanni* (Retz.) P. Beauv and *Oxalis corniculata* L.

These observations suggest that this species may be of frequent occurrence in the low lying plains and valleys adjacent to Shiwalik and Himalayan foothills of Uttarakhand and Himachal Pradesh. This species may have been overlooked or missed by previous botanical explorers due to its diminutive nature and the very short period during which it can be observed in vegetative or reproductive conditions.

Distribution: India (Andhra, Bihar, Maharashtra, Telangana, Uttar Pradesh, Uttarakhand (in this

publication) and West Bengal (Figure 1).

Global distribution: Myanmar, Thailand.

Conservation status: Data Deficient.

Ethnobotanical uses: Tubers and leaves of *T. trilobatum*, *T. flagelliforme*, and *Typhonium inopinatum* are used by tribal people as a source of food and medicine (Panda et al. 2005). In the future, the pharmaceutical and R&D industries may employ it as a potent therapeutic plant.

Specimen examined: WII 22215, 22.viii.2022, India, Uttarakhand, Dehradun District, Wildlife Institute of India, 30.281 °N, 77.976 °E, 619 m, coll. Navendu Page & Sachin Rawat. CAL K000099897, X.1895. India, West Bengal, Botanical Garden, Calcutta, coll. D. Prain. (Image 2). K K000203516, 20.vi.1898. Uttar Pradesh, Bahraich district, coll. Haraukh (Image 2).

Additionally, live specimens were observed from the two localities Indian Institute of Technology, Roorkee, Uttarakhand (29.868 °N, 77.898 °E, 279 m) and Gurukula Kangri University, Haridwar, Uttarakhand (29.919 °N, 78.118 °E, 309 m). (Live specimens from the other two

locations are not cited as no specimens were collected, although images from the field with associated geographic coordinates are available as part of the image exif data, which we have uploaded on iNaturalist and can be verified).

References

- Agarwal, S.K. (2017).** *Flora of Jaunsar Bawar (Chakrata Hills, Western Himalaya): With Ethnobotanical Notes*. Bishen Singh Mahendra Pal Singh, Dehradun, 1001 pp.
- Babu, C.R. (1977).** *Herbaceous Flora of Dehradun*. CSIR Publications, New Delhi, India, 721 pp.
- BSI (2024).** Botanical survey of India website. <https://efloraIndia.gov.in>. Accessed on 23 August 2024.
- Gaur, R.D. (1999).** *Flora of the District Garhwal, North West Himalaya (with ethnobotanical notes)*. TransMedia, Srinagar (Garhwal), U.P., India, 811 pp.
- Kanjilal, U.N. (1928).** *Forest flora of the Chakrata, Dehradun and Saharanpur Forest Divisions, Uttar Pradesh*. Government of India Press, New Delhi, 593 pp.
- Kumar, A., P. Venu & Y.V. Rao (2014).** Rediscovery of *Typhonium inopinatum* (Araceae) from India with notes on the identity of *T. khandwaense*. *Rheedea* 24(2): 120–123. <https://doi.org/10.22244/rheedea.2014.24.02.08>
- India Flora Online (2024).** India Flora Online website. Centre for Ecological Science, Indian Institute of Science, Bangalore. <https://indiaflora-ces.iisc.ac.in/>. Accessed on 23 August 2024.
- Mao, A.A. & S.S. Dash (2020).** *Flowering Plants of India: An Annotated Checklist (Monocotyledons), Volumes 3*. Botanical survey of India, Kolkata, India, 545 pp.
- Mishra, S. (2018).** *Typhonium flagelliforme* (Lodd.) Blume (Araceae: Areae), a new record to the flora of Madhya Pradesh, from Burhanpur district India. *Bioscience Discovery* 9(3): 340–343.
- Mujaffar, S., C.M. Yasin, S. Moinuddin & S. Mustakim (2013).** *Typhonium khandwaense* (Araceae: Areae), a new species from Madhya Pradesh, India. *Bioscience Discovery* 4(1): 25–29.
- Nguyen, V.D., T.V.A. Nguyen, V.T. Tran & T.L. Chi (2022).** Two new records of species and a new synonym of genus *Typhonium* (Araceae) for flora of Indochina. *VNU Journal of Science: Natural Sciences and Technology* 38(3): 54–60. <https://doi.org/10.25073/2588-1140/vnunst.5321>
- Osmaston, A.E. (1926).** *A Forest Flora of Kumaon*. Bishen Singh Mahendra Pal Singh, Dehradun, India, 605 pp.
- Panda, P.C., A.K. Mukherjee & L.K. Acharya (2005).** A taxonomic study of the genus *Typhonium* Schott. *Journal of Economic and Taxonomic Botany* 29(1): 18–21.
- Rasingam, L. & J. Swamy (2017).** *Typhonium inopinatum* Prain (Araceae): an addition to the flora of South India. *Indian Journal of Forestry* 40(4): 401–402.
- Sonule, M.D., S.V. Syed & C.V. Kondekar (2019).** *Typhonium inopinatum* Prain (Araceae: Areae): A new report to the flora of Marathwada. *BIOINFOLET - A Quarterly Journal of Life Sciences* 16(4): 242–243.
- Uniyal, B.P., J.R. Sharma, U. Choudhery & D.K. Singh (2007).** *Flowering Plants of Uttarakhand (A Checklist)*. Bishen Singh Mahendra Pal Singh, Dehradun, 404 pp.



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