NORDIC JOURNAL OF
BOTANY

Short Communication

A new combination and typification of *Pouzolzia peteri Friis* (Urticaceae)

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Nordic Journal of Botany
2026: e04827
doi: 10.1002/njb.04827
Subject Editor:
Alexander Sennikov
Editor-in-Chief: Torbjörn Tyler
Accepted 18 November 2025
Published 14 January 2026

Pouzolzia peteri, a lesser-known species from the African continent, is currently classified as a member of the genus *Pouzolzia*. However, based on the morphological characteristics of its male flowers and leaf venation, its transfer to the genus *Gonostegia* is proposed.

Keywords: lectotype, morphology, nomenclature, revision

Introduction

The genus *Gonostegia* Turcz. (Urticaceae) is now widely accepted based on phylogenetic and morphological evidence (Chen et al. 2003, Choudhary et al. 2012, Kumar, 2012, Wu et al. 2013, Wu et al. 2013, 2015, Murti and Pusalkar, 2022, Monro et al. 2025), although its species have often been treated under the genus *Pouzolzia* and its section *P.* sect. *Memorialis* (Wight 1853, Wilmot-Dear and Friis 2004, Murti and Pusalkar 2022). The genus is represented by 2–12 species and naturally distributed across the tropical and subtropical regions of Asia, Australia (Chen et al. 2003, Wilmot-Dear and Friis 2006, Hadiah et al. 2008, Wu et al. 2013, Murti and Pusalkar 2022) and Africa (Friis and Jellis 1984, Friis 1987, 1989).

The distinction between *Gonostegia* and *Pouzolzia* has long been a subject of taxonomic debate, with historical and modern classifications differing when based on morphological, anatomical, and molecular evidence. *Gonostegia* typically exhibit a vigorous scrambling or erect unbranched habit with leaves reduced in size to bracts, whereas *Pouzolzia* generally has a shrubby or herbaceous habit with all leaves normal-sized. Leaf venation is an important character in *Gonostegia*, the basal lateral veins are of the convergent type and reaching to the apex of the lamina, while upper lateral veins are absent, in contrast, *Pouzolzia* has divergent basal lateral veins that do not reach the apex, and with upper lateral veins being present. Perianths of the male flowers of *Pouzolzia* have a simple bud without a rim (crest) and an apical depression, while in *Gonostegia* male flower tepals possess a circular ciliated rim and an apical depression. The fruit

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in *Gonostegia* is often winged or ribbed, with features ranging from shallow ribs to broad wings, but such are generally absent in *Pouzolzia,* except in *P. zeylanica* (Kravtsova et al. 2003). Anatomically, *Gonostegia* is distinguished by its colorless endocarp wall, in contrast to the yellow-brown endocarp walls of *Pouzolzia* (Kravtsova et al. 2003). Molecular phylogenetic analysis of Urticaceae using maximum likelihood (ML), maximum parsimony (MP), and Bayesian inference (BI) methods based on DNA sequences from two nuclear (ITS and 18S), four chloroplast (matK, rbcL, rpll4–rps8–infA–rpl36, trnL–trnF) and one mitochondrial (matR) gene loci have revealed that *Pouzolzia* is polyphyletic, whereas *Gonostegia* forms a distinct, well-supported monophyletic clade and is a clearly defined genus. Furthermore, *Pouzolzia* shares a closer phylogenetic relationship with *Boehmeria*, and *Gonostegia* appear as a sister clade of *Pouzolzia* (Wu et al. 2013). Geographically, *Gonostegia* is primarily distributed across tropical eastern Africa and tropical to subtropical Asia and Australia (Old World), while *Pouzolzia* occurs in tropical to temperate regions of both Old and New Worlds.

Pouzolzia peteri Friis (1987) is a little-known species, recognized solely from its type material collected in Tanzania. Although morphologically it shows a closer resemblance to the genus *Gonostegia*, it has taxonomically been placed in the genus *Pouzolzia* (Friis and Jellis 1984, Friis 1987, 1989, Wilmot-Dear and Friis 2004). As detailed below, we here suggest to transfer it to *Gonostegia*.

Material and methods

This study is based on our critical examination of relevant literature and protologues (Peter 1932, Friis and Jellis 1984, Friis 1987, Wilmot-Dear and Friis 2004) and consultation of herbaria BM, G, P, US. The lectotypification adher to articles 9.4, 9.10 of the ICN (Turland et al. 2018), ensuring compliance with nomenclatural standards.

Taxonomic treatment and typification

Gonostegia peteri (Friis) Amit Gupta & V.Wagh comb. nov.

Based on the same type: *Pouzolzia peteri* Friis (Friis 1987, p. 666). – *Pouzolzia cordata* Peter (Peter 1932, p. 2).

Neotype (designated by Friis 1987, corrected here as lectotype): [icon] Repert. Spec. Nov. Regni Veg. Beih. 40 (2, Anhang), Table 12, Fig. a–h (1932) (Fig. 1).

We consider the current generic placement of *Pouzolzia peteri* Friis taxonomically unsatisfactory. Originally the species was published under the genus *Pouzolzia* Gaudich., as *P. cordata* Peter (1932), based on specimens collected by Peter from three distinct localities in Tanzania (Mkuti, Uha, and Urundi). Among these collections, two specimens were from Uha (B37372 and B37415), one from Urundi (B38012), and one from Mkuti (B37231). In the protologue, Peter (1932) provided a brief diagnosis, specimens citation, and an illustration. However, the name was rendered illegitimate as it constituted a later homonym of *P. cordata* Benn. (1838). During their revision of African Urticaceae, Friis and Jellis (1984) accepted *P. cordata* as a morphologically distinct taxon, resembling the Asian genus *Gonostegia*. Subsequently, Friis (1987) proposed a new name, *P. peteri* Friis, and designated the published illustration as the neotype, in accordance with Article 7.5 of the Sydney Code (Voss et al. 1983), which did not allow the designation of uncited material as a lectotype. Friis (1989) accepted the species in the East African flora and pointed out that no new material had been collected after the original material. In their global revision of *Pouzolzia*, Wilmot-Dear and Friis (2004) placed *Pouzolzia peteri* in *P.* sect. *Memorialis,* which they considered taxonomically equivalent to the genus *Gonostegia*. They also noted that all original syntype collections were destroyed during the World War II.

Additionally, Wilmot-Dear and Friis (2004) proposed three main possibilities regarding the treatment of *P. peteri*: 1) it might be a distinct and rare African species with a very limited distribution, yet belonging to the otherwise exclusively Asian section *Memorialis* (i.e. *Gonostegia*) of the genus *Pouzolzia*; 2) it could be an originally Asian species, most likely *P. hirta*, that has been naturalized in a restricted region in Africa, although *P. hirta* is not otherwise known to have naturalized outside Asia; or 3) original *P. peteri* specimens might actually have been of Asian origin but were incorrectly labeled as collected in Africa. However, as Friis (1987) noted, it would be quite unlikely for four separate collections of Asian *Pouzolzia* to be consistently misattributed to Peter's extensive and otherwise exclusively East African plant collections.

Schmucker (1938) provided an account of Peter's life, scientific contributions, and the outcomes of his first and second East African expeditions, highlighting his meticulousness and strong ethical standard as a researcher and collector. Peter aspired to study the relationship among different types of vegetation around the world. Initially, he undertook some exploratory trips to the Mediterranean region without any funding support, even at the age of sixty. After finally securing the necessary funding and official leave, he embarked on a major expedition to Africa in the early summer of 1913, departing in July. His journey began with travels through Southwest Africa, the Cape region, and Pretoria. By December, he had reached Tanga, from there, he enthusiastically explored the surrounding jungle near Amani, followed by an expedition to Mount Kilimanjaro. A large safari, involving around 60 porters, took him through the Meru region and into several remote and little-known areas. Eventually, he was summoned to Urundi in the Lake Tanganyika region. However, shortly after his arrival, news of the outbreak of war reached him. He then began a slow return journey, continuing his research and collecting specimens along the way, and eventually found refuge once again in Amani. During his journeys, he did not visit Asia, thus eliminating the possibility of mixing African collections with Asian material. In another expedition in

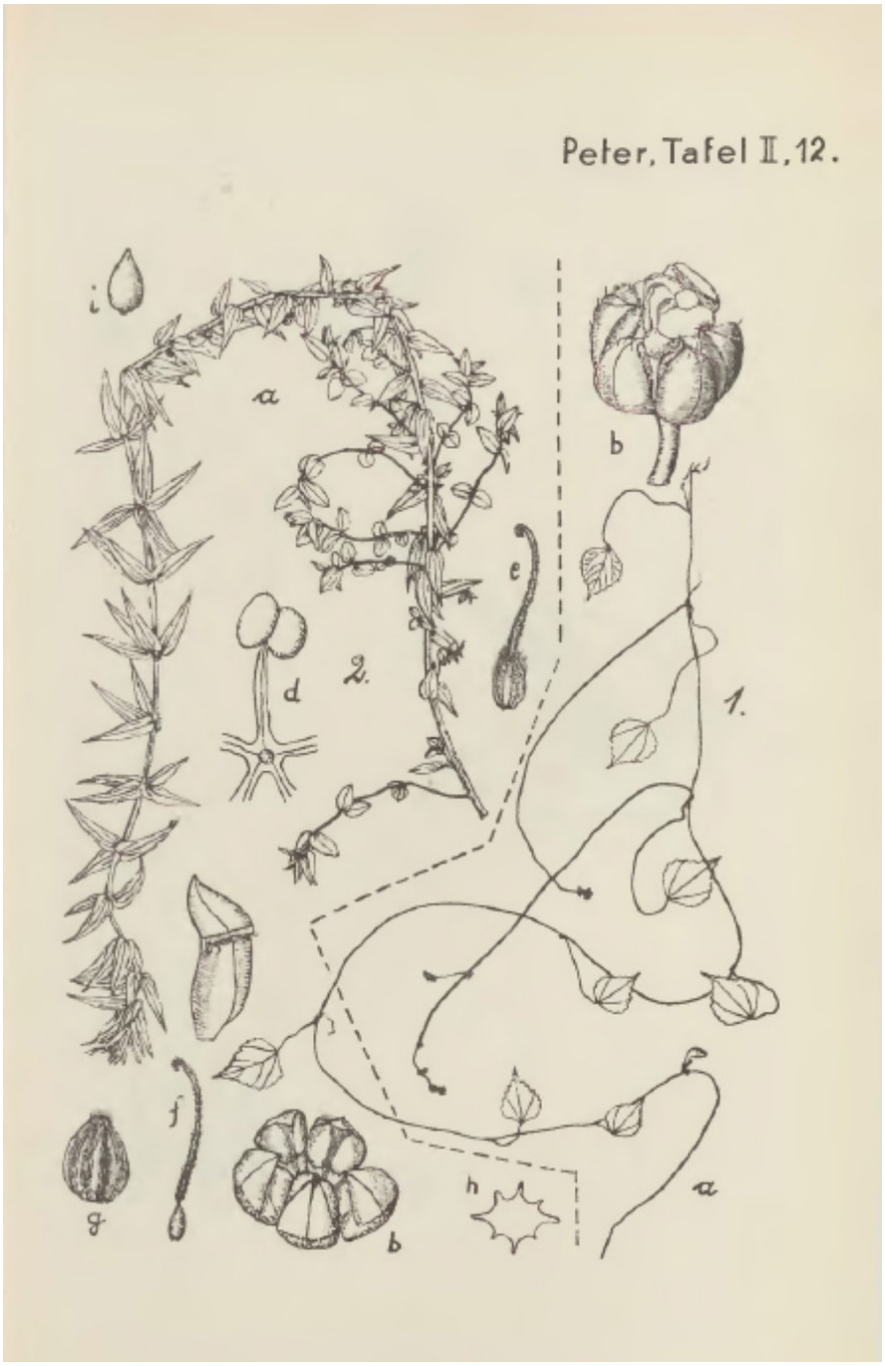


Figure 1. Lectotype of *Pouzolzia peteri* Friis, Repert. Spec. Nov. Regni Veg. Beih. Icon: 2, Tab12.

1926 to the same regions, he gathered an enormous collection of nearly 50 000 specimens, an achievement being almost unparalleled in scale. Despite being 73 years old and initially suffering from malaria, he undertook the monumental task of processing the collection, with only limited assistance.

A thorough examination of Peter's collections by Polhill and Polhill (2015), which incorporated information not available to Wilmot-Dear and Friis (2004), omits several specimens: Peter 37 231 (February 1926), Peter 37 372, Peter 36 415 (all from February 1926), and Peter 38 012 (March 1926). Furthermore, Polhill & Polhill's list revealed an unexplained gap in the sequence of collection numbers between 35 009 and 36 864 (dated 15 January to 18 March), as well as 38 919 (26–29 March). Some specimens may have been damaged or lost, leading to gaps in the collection during its examination.

Morphologically, Peter's specimens closely resemble the Asian *Gonostegia* in several key features, including herbaceous

habit, erect stem branching only at the base, leaves sessile or subsessile, alternate to whorled in whorls of 3–4, with entire or finely serrulate margins and a single pair of basal lateral veins reaching almost to the apex. *Pouzolzia peteri* is distinct from *P. pentandra* in that its main-stem leaves do not decrease significantly in size toward the apex of the stem. It differs even more from *P. pentandra* var. *gracilis,* as its main stem bears whorled leaves throughout, rather than spirally arranged leaves near the apex, and it branches only near the base, with the upper leaves remaining similar to the lower main-stem leaves. *Pouzolzia peteri* is more closely related to *P. hirta,* sharing a similar straggling, herbaceous habit and general appearance, as well as cordate leaf bases, which are more common in *P. hirta* than in *P. pentandra.* However, it differs from *P. hirta* in having whorled leaves on the main stem, while the leaves on its branches are opposite and gradually change in shape toward the apex.

A comprehensive review of published literatures, examination of herbarium specimens and illustrations indicates that *P. peteri* is more appropriately placed in the genus *Gonostegia*. Therefore, we propose a new combination, *G. peteri* (Friis) Amit Gupta & V. Wagh, based on morphological features such as lateral leaf margins reaching the apex, pedicellate 5-merous male flowers that are depressed at the apex in bud, and tepals bearing a distinct transverse dorsal crest-like appendage forming a continuous circular rim. After carefully reviewing the original material associated with Peter's collection and accompanying illustration, in accordance with article 9.4 of ICN, we conclude that there is no extant original material of *G. peteri* currently available for typification, except for the published illustration. Illustrations can sometimes convey more information than preserved specimens (Del Guacchio et al. 2024). Peters's illustration (Peter 1932, Table 12, Fig. a–h), considered here as original material for the species name, also aligns with the current concept of *G. peteri*. It depicts a plant with a in having whorled leaves, sometimes opposite at base, leaves with entire margin, male flower buds pedicellate, 5-merous, tepals with dorsal circular rim, female flower perianth tubular, stigma filiform and achenes longitudinally ribbed (Peter 1932, Friis 1987). Previously the illustration was designated as neotype by Friis (1987); this designation is corrected here as lectotype following Article 9.10 of the ICN (Turland et al. 2018).

Acknowledgements – The authors would like to express their sincere gratitude and heartfelt acknowledgments to the Director, CSIR-National Botanical Research Institute, Lucknow for providing research facilities and constant encouragement. We are also immensely thankful to various herbaria (BM, G, P, US) for granting us access to their collections virtually. CSIR-NBRI communication number: CSIR-NBRI_MS/2025/02/05.

Funding – This research has been funded by the Science and Engineering Research Board (SERB), Government of India, New Delhi (grant no. EEQ/2021/000141), and University Grant Commission, New Delhi for the Senior Research Fellowship F.N. 16-9 (JUNE 2018)/2019 (CSIR UGC NET JRF).

Conflict of interest – The authors declare no conflict of interest.

Author contributions

Amit Gupta: Conceptualization (equal); Data curation (equal); Formal analysis (equal); Investigation (equal); Methodology (equal); Resources (equal); Writing – original draft (equal); Writing – review and editing (equal). **Vijay V. Wagh**: Conceptualization (equal); Data curation (equal); Formal analysis (equal); Funding acquisition (equal); Investigation (equal); Methodology (equal); Project administration (equal); Resources (equal); Supervision (equal); Validation (equal); Writing – original draft (equal); Writing – review and editing (equal).

Data availability statement

This article has no additional data.

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