



## Lecto- and epitypification of *Stephania rotunda* (Menispermaceae)

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The plant genus *Stephania* Loureiro (1790: 608–609) (Menispermaceae) comprises about 60 species distributed in tropical and subtropical Asia, tropical Africa, and Oceania (Lo *et al.* 2008). Species of this genus are commonly used in folk medicine for the treatment of asthma, tuberculosis, dysentery, hyperglycemia, cancer, fever, and malaria (Semwal *et al.* 2010). Currently, active pharmacological research is being conducted on *S. rotunda* Loureiro (1790: 608), and particularly on its tubers. This species shows in addition to antioxidant and cytotoxic activities, a significant antiplasmodial activity (Bun *et al.* 2009, Baghdikian *et al.* 2013).

Floral traits are seldom used for infrageneric determination purposes in *Stephania*. Rather, vegetative traits show a better taxonomical discriminating power to determine species. According to the original description of the Portuguese botanist João de Loureiro (1790), *Stephania rotunda* is characterized by subrounded or triangular-suborbicular peltate leaves and twining stems. No type was designated in the protologue; however Loureiro specified that the species habitat was the Cochin-Chinese forest. Two specimens collected by Loureiro, housed at the Herbarium of The Natural History Museum (BM), correspond to the type location: *Loureiro s.n.*, BM000554372 and BM000554373 (Fig. 1A, B). The most complete specimen (the first one cited here) is now designated as the lectotype, and the other considered to be an isolectotype. Lewis L. Forman (1956: 41) noted that these specimens are ambiguous for any determination or comparison purposes. His statement needs to be qualified; the specimens are indeed poor: both are male plants, the leaves are either absent or poorly preserved, and fruits are absent (Fig. 1A, B). However, some inflorescences are present, and the overall shape of the leaves can be observed. To sum up, the assessment that *S. rotunda*'s protologue is weak and the lecto- and isolectotype are not totally informative implies that the name *S. rotunda* could be wrongly applied, resulting in many specimens misidentified or identified with great uncertainty.

A search in the Web of Science™ (accessed 6 May 2014) using “*Stephania rotunda*” as a request finds 21 articles reporting studies of the pharmaceutical properties of plants collected and named as *S. rotunda*. Specimens identified as *S. rotunda* were included in studies investigating the phylogenetic relationships within the genus (e.g. Hoot *et al.* 2009), and in morphological studies (Jacques & Bertolino 2008). It is then unquestionable that many different species of *Stephania* were designated with the specific epithet *rotunda*, with, as a corollary, the use of misidentified plants for drawing conclusions relative to the chemical properties of species that are believed to be *S. rotunda*.

We provide here a more precise diagnose of *Stephania rotunda* and select an epitype for this name. We looked for a species of *Stephania* presenting macromorphological traits that could fit those of *S. rotunda*, as described in the protologue and observed on the specimens collected by Loureiro in the type location. According to Gagnepain (1938: 136) and Forman (1956: 41, 1988: 385, 1991: 323), three species are morphologically comparable to *S. rotunda*: *S. glabra* (Roxburgh 1832: 840) Miers (1866: 14–15), *S. pierrei* Diels (1910: 276), and *S. venosa* (Blume 1825: 27) Sprengel (1827: 316). The latter species has triangular-ovate or triangular leaves, different from the triangular-suborbicular leaves found in *S. rotunda* as described by Loureiro (1790), and produces a red sap when no such feature was highlighted in *S. rotunda*'s diagnosis. *Stephania pierrei* could be assimilated to *S. rotunda*. However, Diels (1910) noted that *S. pierrei* has apetalous male flowers, orbicular or suborbicular leaves, with a diameter of 2–5.5 cm, and a small tuber, which make the species inappropriate for epitypification. Additionally, some plants of *S. pierrei* have an erect habitus contrasting with the twining stems of *S. rotunda*. *Stephania glabra* could best fit the original description of *S. rotunda* and is the most appropriate candidate for the epitypification of *S. rotunda* as it has triangular-suborbicular or broadly triangular-ovate leaves and a large tuber. The name *S. glabra* hence becomes synonymous with *S. rotunda*.

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