

Qualitative phytochemical analysis and phenetic variation of *Piper* species in Sri Lanka

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The genus *Piper* is represented in Sri Lanka by ten species of which three are endemics. *Piper nigrum* L. (black pepper) and *P. betle* L. (betel) are the main crops that make the genus commercially important and some species are used in traditional medicine. This study aimed to reveal the interspecific relationships of selected *Piper* species based on the variation in qualitative phytochemical screening and phenetic approach.

Piper nigrum L., *P. betle* L., *P. longum* L., *P. chuvya* (Miq.) C. DC., *P. siriboa* L., *P. sylvestre* Lam. and *P. zeylanicum* Miq. were collected from natural habitats and from the cultivations. The air dried leaves were powdered using a grinder and subjected to successive extraction using petroleum ether, chloroform, ethyl acetate and methanol. All the extracts were subjected to qualitative phytochemical tests. Anatomical studies were carried out by observing epidermal peels and transverse sections of the fresh leaves and photomicrographs were prepared.

The phytochemical screening confirmed the presence of tannins, flavonoids, terpenoids, glycosides, alkaloids and phenolic compounds in all the species examined. Various types of trichomes, glands and secretory cells were present in the leaves which indicates the richness of secondary metabolites. Fourteen morphological and anatomical characters of leaves were subjected to cluster analysis using PAST software to infer interspecific relationships. According to the phenogram (Single linkage, Euclidean distance), *P. longum*, *P. zeylanicum* and *P. sylvestre* were clustered to one group showing more similarities while *P. nigrum*, *P. chuvya*, *P. siriboa* and *P. betle* were separated from the rest. Presence of non-glandular trichomes, symmetry of the leaf base and leaf length were the most discriminating characters.

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