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Qualitative and quantitative analysis of different extracts of *Monochoria vaginalis* (Diya habarala) grown in Sri Lanka

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Monochoria vaginalis, locally known as *Diya habarala* belonging to the family Pontederiaceae is an endemic species with many medicinal uses in Ayurveda and Traditional medicine. This is used to treat dermatological disorders and also an ingredient of *Neelyaadi* oil. Since current trend is to develop quality control parameters for the standardization of herbal drugs; the study was aimed at the establishment of qualitative and quantitative analytical parameters for whole aerial parts of *M. vaginalis*. Plants were collected from Western province, Sri Lanka and authenticated from the National Herbarium, Botanical Garden, Peradeniya, Sri Lanka. Long petioles with leaves except underground parts were obtained. They were cleaned, oven-dried at a temperature below 45 °C until a constant weight was obtained and powdered. Extracts were obtained with distilled water, methanol and acetone. The aqueous extract was obtained by hot Soxhlet extraction while methanol and acetone extracts were obtained by cold maceration. Each was subjected to preliminary phytochemical screening, determination of physico-chemical parameters and High-Performance Thin Layer Chromatography (HPTLC). TLC was run to select the best solvent system for each extract. Normal phase TLC was run for methanol and acetone extracts while reverse phase TLC was run for aqueous extract and HPTLC fingerprints were obtained. Each test was conducted in triplicate and results were expressed as mean±standard deviation using SPSS 25. All extracts contained carbohydrates, terpenoids and flavonoids. Aqueous and methanol extracts contained saponins, phenols, diterpenes and reducing sugars. Proteins were found only in aqueous extract while glycosides and phytosterols were found in acetone extract. Total ash, acid insoluble ash, water soluble ash, loss on drying, extractability in distilled water, methanol and acetone were 14.91±0.29, 6.15±2.92, 8.88±3.28, 11.66±0.65, 23.62±1.04, 17.46±0.17 and 2.89±0.11 % w/w respectively. HPTLC fingerprint of aqueous extract exhibited 9 R_f values; 0.06, 0.14, 0.17, 0.20, 0.40, 0.44, 0.50, 0.75 and 0.82 with distilled water: methanol (4:2). HPTLC profile of methanol extract showed 8 R_f values; 0.03, 0.06, 0.17, 0.24, 0.43, 0.54, 0.83 and 0.90 with methanol: n-hexane: ethyl acetate (6:2:2). HPTLC profile of acetone extract showed 6 peaks with R_f values; 0.03, 0.13, 0.17, 0.24, 0.33 and 0.51 with methanol: n-hexane (8:2). Hence, it is concluded that the above can be used as preliminary quality control parameters of *M. vaginalis* aerial parts grown in Western province, Sri Lanka. Further, it is recommended to use more advanced tools like DNA barcoding in standardization of herbal raw materials.

Keywords: High Performance Thin Layer Chromatography, *Monochoria vaginalis*, Physico-chemical, Phytochemical

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