Plant vegetative stages and drying methods affect flavonoid content of Clinacanthus nutans extracts

ABSTRACT

Background: Clinacanthus nutans, also known as ‘Sabah snake grass’ or ‘Belalai gajah’, is a herb well known locally for its medicinal values. The primary chemical constituents of the leaves are schaftoside, vitexin, isovitexin, orientin and isoorientin, and antiviral activity is shown by two glycoglycerolipids. Despite the importance of C. nutans, complete information with respect to commercial production and postharvest handling of the herb in the local herbal industry is still lacking. Thus, the objective of this study was to determine the optimum postharvest handling processes that could retain the phytochemicals quality of C. nutans. Materials and Methods: The flavonoid compounds of C. nutans were analysed by using ultra fast liquid chromatography (UFLC). Total phenolic content and antioxidant activity were determined using a spectrophotometer. Results: The total phenolic compounds and antioxidant activity in C. nutans were found to be higher in the young vegetative stage than in the mature vegetative stage. Flavonoid compounds (schaftoside, isovitexin, vitexin and orientin) were also found to be highest in the young vegetative plant compared to the mature vegetative plant. All of the assayed phytochemicals and flavonoid compounds levels were found to be highest in oven dried samples compared to the sun, air and solar dried samples. Conslusion: This study suggests that oven-drying young vegetative C. nutans plant material is the optimum method to retain postharvest quality.

Keyword: Flavonoid; Sabah snake grass; Schaftoside; Vitexin; Drying