

High-performance liquid chromatography (HPLC) analysis for flavonoids profiling of Napier grass herbal tea

ABSTRACT

Natural plant products are becoming more and more essential in helping to promote safe well-being worldwide. This leads to a substantial rise in the consumption of various herbal teas. The presence of beneficial bioactive ingredients such as flavonoids may be correlated with Napier grass herbal tea having health benefits associated with their intake. Studies have shown that herbal teas have preferentially high antioxidant activity due to the presence of flavonoids in them. The purpose of this study was to identify the Napier grass herbal teas flavonoids prepared under different conditions. Napier grass herbal teas have been formulated using green tea and black tea processes, respectively. The tea samples were extracted in water (95°C, 30 mins) and 60% (v/v) aqueous methanol (30 mins), respectively. Approximately, 1% (v/v) aqueous acetic acid solution (solvent A) and acetonitrile (solvent B) were used as the mobile phase. The flow rate was adjusted to 0.7 mL/min, the column was thermostatically controlled at 28°C, and the injection column was kept at 20 µL. HPLC chromatograms were detected using a photodiode array UV detector at 272 nm. Gallic acid, P-coumaric acid, catechin, epigallocatechin gallate, quercetin, rutin, myricetin and kaempferol were found in both Napier grass water and methanolic extracts, respectively. The findings suggested that the HPLC techniques are ideal for the detection and identification of flavonoids in Napier grass teas.

Keyword: Napier grass; HPLC; Flavonoids; Herbal tea; Antioxidant activity