

ABSTRACT

A simple and sensitive reversed phase high performance liquid chromatographic (HPLC) method was developed for the determination of biomolecules in different types of tea. Most of the High Performance Liquid Chromatography (HPLC) methods used for the determination of tea biochemicals include gradient elution systems which involve expensive instrumentation. The aim of this study was to develop an improved sensitive, fast, cost effective and accurate isocratic HPLC method with photo diode array (PDA) detection for analysis of Gallic acid, caffeine and catechins in tea, using a suitable internal standard. The developed HPLC analytical method consisted of a C6 - phenyl column and an isocratic elution system of Water: acetonitrile: methanol: ortho phosphoric acid: ethyl acetate (77.5:18:2.0:0.5:2.0 v/v/v/v/v) at a flow rate of 1.0 mL/min. The detection wavelength was chosen at 278 nm with guaiacol (2-methoxyphenol) used as an internal standard as it did not co-elute with the analytes of interest. Statistical comparison of the analytical result obtained for gallic acid, caffeine and catechins in four tea types - green CTC (cut, tear and curl), black CTC, green orthodox and black orthodox using the developed method and ISO 1405-2:2005(E) method did not show significant difference. The method was validated and showed consistency to qualitative and quantitative determination of the tea biomolecules of interest