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Simultaneous Determination of caffeic Acid Phenethyl Ester and Its metabolite Caffeic Acid in Dog plasma Using Liquid Chromatography Tandem mass Spectrometry

Caiming Tang[a], **and O. Samuel Sojinu**[b],

[a] State Key Laboratory of Organic Geochemistry, Guangzhou Geochemistry Institute of Chinese Academy of Sciences, Guangzhou 510640, China
[b] Department of Chemical Sciences, Redeemer's University, Klm 46/48 Lagos-Ibadan Express Way, Nigeria

Abstract

A simple, reliable and sensitive method for the simultaneous determination of caffeic acid phenethylester (CAPE) and its metabolite caffeic acid (CA) in dog plasma was developed using liquid chromatography tandem mass spectrometry (LC–MS/MS). The sample pretreatment generally involved protein precipitation treatment (PPT) and direct dilution. CAPE and CA were separated with a C18 reversed-phase column. Electrospray ionization (ESI) interface operated in negative mode was chosen for ionization. Multiple reaction monitoring (MRM) mode was selected for data acquisition. The quantification range was 10.0–10,000.0 ng mL^{-1}. The intra- and inter-batch accuracies were within 92.5–107.0% with relative standard deviation (RSD, %) no more than 10.5%. CAPE and CA were proved to be stable in stabilizer-treated dog blood and PPT-treated plasma during the sampling and pretreatment period. The applicability has been evaluated with real samples from treated dogs.

Keywords: Caffeic acid phenethyl ester; Caffeicacid; Dogplasma; Stability; Liquid chromatography tandem mass spectrometry.