Research in Pharmaceutical Sciences, 2012;7(5)
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Synthesis of heterocyclic esters of caffeic acid using Mitsunobu reaction

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Background and Aims: Caffeic acid is a catechol containing α-β unsaturated carboxylic acid which in the form of phenethyl ester (CAPE) exhibits a wide spectrum of biological activities such as anti-microbial, antiviral, anti-oxidant, anti-inflammatory and the most important of all, anti-neoplastic actions. The Mitsunobu reaction can distinguish between alcohol and phenol hydroxyls in esterification reactions. A series of caffeic acid esters was synthesized by Mitsunobu reaction between different heterocyclic alcohol and caffeic acid.
Cytotoxicity effect of these esters was evaluated versus Hela, SK-OV-3, HT_29 by the 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) colorimetric method. The compounds showed a good inhibitory effect on cell growth in comparison with doxorubicin as control.

Keywords: Caffeic acid; Estrification; Heterocyclic alcohols; Mitsunobu reaction