

Isolation, structure elucidation, identification and quantitative analysis of 1'-acetoxychavicol (ACA) from the roots of chlorophytum borivilianum (safed musli)

ABSTRACT

Chlorophytum borivilianum (safed musli) is a medicinally important plant. Its roots are being employed in folk medicine. Presently, the crude extract of C. borivilianum has been consumed for the treatment such as anti-diabetic, antiaging, anti-oxidant, anti-ulcer and anti-inflammatory and previous studies have been carried out to further confirm these remarkable bioactivities of C. borivilianum. In this research, 1'-acetoxychavicol acetate (ACA) was isolated from the roots of C. borivilianum. The structure of ACA was elucidated based on the spectral data of ¹H NMR, ¹³C NMR, DEPT, COSY, HMBC, HMQC and also based on the comparison with the previous literature data. ACA was isolated in an isocratic elution that eluted with hexane and ethyl acetate in the ratio of 10:0.25. In the HPLC analysis, the separation of the crude methanol extract was completed within 20 min and the retention time of ACA in the sample was 7.31 min. The regression equation of the calibration curve was developed and the correlation coefficient was found to be 0.991. This is the first report regarding the presence of ACA in C. borivilianum as well as its genus. For the first time, a high performance liquid chromatographic (HPLC) method with photodiode array detection was developed for the quantitative determination and identification of ACA.

Keyword: Chlorophytum borivilianum; Isolation; 1'-acetoxychavicol acetate (ACA); Structure elucidation; Quantification