Isolation, structure elucidation, identification and quantitative analysis of di(2-ethylhexyl) phthalate (DEHP) from the roots of Chlorophytum borivilianum (safed musli)

ABSTRACT

Chlorophytum borivilianum (safed musli) is a traditional herbaceous medicinal plant belonging to family Liliaceae. Its roots are being employed in folk medicine. The crude extract of C. borivilianum has been consumed due to its versatile therapeutic uses. The scientific studies related to the important pharmacological properties are widely conducted and the remarkable bioactivities of C. borivilianum are proven in literatures. So far, the isolated chemical compounds are mainly saponins. In this research, the isolation was focused on compounds other than saponins and bis(2-ethylhexyl) benzene-1,2-dicarboxylate was isolated for the first time from the roots of C. borivilianum. The structure was identified 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. This is the first report regarding the presence of this compound in C. borivilianum as well as its genus. A high performance liquid chromatographic (HPLC) method with photodiode array detection was established to identify and quantify bis(2-ethylhexyl) benzene-1,2-dicarboxylate.

Keyword: Chlorophytum borivilianum; Isolation; Bis(2-ethylhexyl) benzene-1,2-dicarboxylate; Structure elucidation; Quantification