Novel Cycloartan derivative with genetic and metabolic pro ›iling of two Crassulaceae species

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Abstract

Crassula tetragona L. and Crassula ovata (Mill). are ornamental species of fam ily Crassulaceae. Although this family is known for its high medicinal values, however, there is no much work considering the two species. Hence, this study represents the ›irst comparative investigation of the genetic and metabolic pro ›iling of the aerial part of both species. In this study, an examination of the genetic properties of both plants were accomplished, quantitative estimation of the main chemical classes of both species were also per formed, investigation of the lipoidal matter of the plants and the major com pounds of the methylene chloride (MeCl) fractions were isolated and identified using 1D and 2D NMR. Our results proved the genetic difference using RAPD and ISSR techniques of both plants. Estimation of triterpene was 63.18 Õg/100Õg and 87.06 Õg/100Õg, ursolic acid equivalent, in C. tetragona and C. ovata respectively. The unsaponi ›iable matter (USM) of n-hexane extract of C. tetragona and C. ovata revealed the presence of 32 hydrocarbons with the presence of n-tricontane as the major hydrocarbon in both species, in addition to seven steroidal components in both species. The investigation of
fatty acid methyl ester (FAME) revealed the presence of 12 components in C. tetragona and 9 components in C. ovata, and a novel triterpene, namely, 28-Methyl-5Ŭ-cycloart12, 20, 24-trien-15ƀ-Ol was isolated and identified from MeCl together with 5 known compounds.

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