

Superacidic Cyclization of Methyl Esters of 13Z,17Z- and 13Z,17E-Bicyclogeranylarnesic Acids

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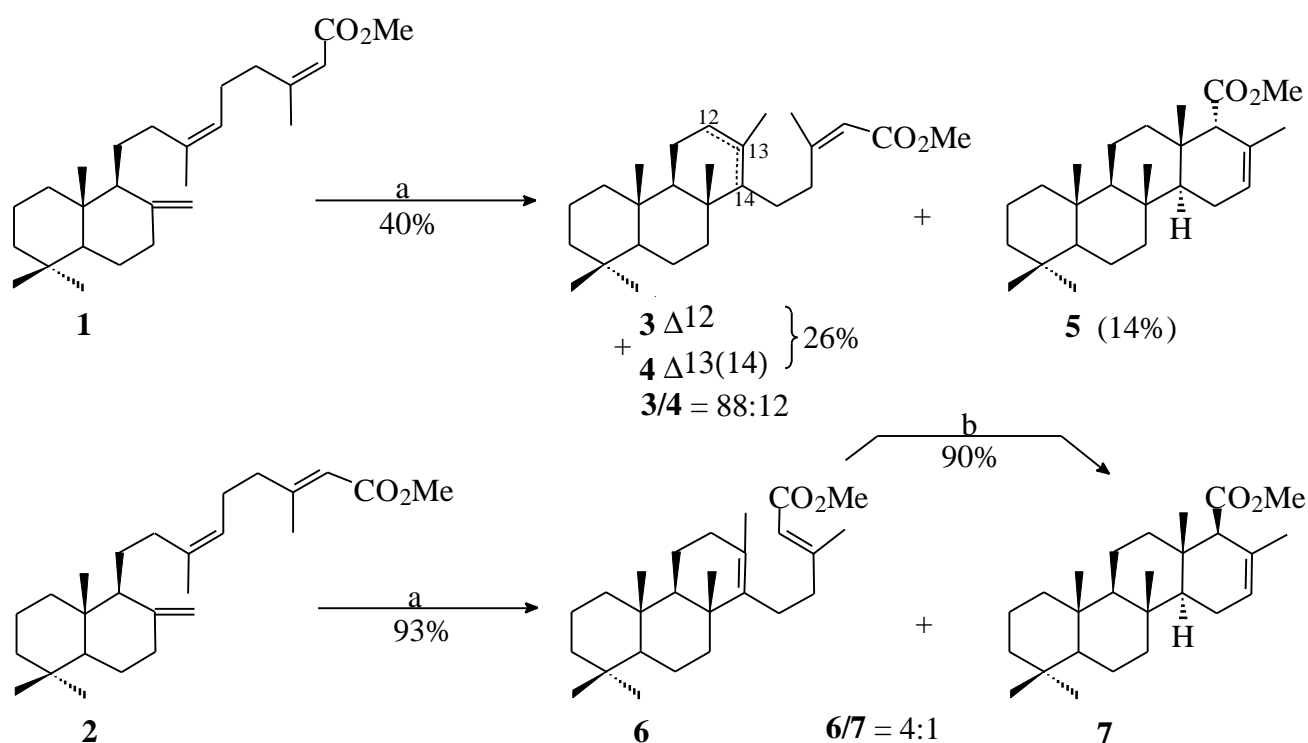
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Superacidic low temperature cyclization of 13Z,17Z- bicyclogeranylarnesic acid methyl ester **1** afforded the mixture of cheilantane esters **3** and **4** and scalarane ester **5**. Under the same conditions 13Z,17E-bicyclogeranylarnesic acid methyl ester **2** gave the mixture of chelanthane ester **6** and scalarane ester **7**. The structure and stereochemistry of new compounds **3**, **4** and **6** were established on the basis of their spectral data.



Scheme. a. FSO₃H (5 mol-eq), *i*-PrNO₂, -78°C, 15 min; b. FSO₃H (15 mol-eq), *i*-PrNO₂, -78°C, 30 min.

The results of superacidic low temperature cyclization of sesterterpenic esters **1** and **2** show that the cyclization process is a stepwise but not a concerted one.