

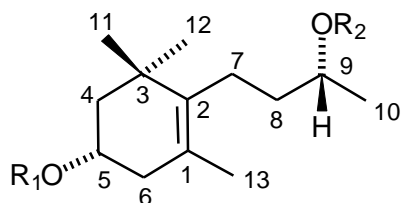
## New Isomeric Isoprenoid Glucosides from *Saussurea controversa*

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*Saussurea controversa* DC of the *Asteraceae* family is used in the Siberian folk medicine for the treatment of lung diseases, osteomyelitis, reumatitis, and as a blood-arresting and wound-healing agent.

From the above-ground part of *S. controversa* collected in the Irkutsk Region a mixture of two of 5(R)hydroxy-2-[3(R)hydroxybutyl]-1,3,3-trimethylcyclohexene glucosides (III) was isolated: 5(R)- $\beta$ -D-glucopyranosyloxy-2-[3(R)hydroxybutyl]-1,3,3-trimethylcyclohexene (I) and 5(R)-hydroxy-2-[3(R)- $\beta$ -D-glucopyranosyloxybutyl]-1,3,3-trimethylcyclohexene (II). Acid hydrolysis with perchloric acid gave the aglycone III and glucose.



I  $R_1 = \beta\text{-D-Glcp}$ ;  $R_2 = \text{H}$

II  $R_1 = \text{H}$ ;  $R_2 = \beta\text{-D-Glcp}$

III  $R_1 = R_2 = \text{H}$

The structure of the compounds isolated was established basing on spectral characteristics of I-III. In the present study standard techniques such as 2D COSY, 2D TOCSY, 2D ROESY (for  $^1\text{H}$  NMR) and ART ( $^{13}\text{C}$  NMR) were used. The absolute configuration of chiral atoms in compounds I-III was determined by analysis of the difference in  $^{13}\text{C}$  NMR chemical shifts of the above compounds and their chiral derivatives.