Antimicrobial activities of diterpenoids and semisynthetic derivatives from Azorella compacta

Núñez S.

San-Martín A.

Corsini G.

The antibacterial activity of two natural diterpenoids isolated from Azorella compacta together with six semisynthetic derivatives, were evaluated against three bacteria: Staphylococcus aureus, Escherichia coli and Mycobacterium smegmatis. The synthesis of the semisynthetic derivatives 3-5 and 8 have not been previously reported with the methods described in this research. The structures of all diterpenoids were elucidated by NMR 1H, 13C and IR spectroscopy. The natural diterpenoids, mulinolic ácid (1) and azorellanol (2) did not present antibacterial activity, but the six derivatives: 12-oxo-11,13-?,?-dihydroxymulin-20-oic ácid (3), 11-oxo-12,13-?,?-dihydroxymulin-20-oic ácid (4) 11,12-dioxo-13-?-hydroxymulin-20-oic ácid (5), 7-acetoxymulin-9,12-diene (6), mulin-9,12-dien-7-ol (7) and 7-acetoxy-12,13-dihydroxymulin-9-en (8) were active against three tested bacteria. The antibacterial activity reported for six semisynthetic diterpenoids may not be comparable with positive control ampicillin but demonstrate the possibility of modification of the biological activity of diterpenoids.

Antibacterial activity

Apiaceae

Azorella compacta

Diterpenoids