
Title

Antimicrobial Activity of Drimanic Sesquiterpene Compounds from *Drimys winteri* against Multiresistant Microorganisms

Abstract

In this work, a group of ten sesquiterpene drimanes, including polygodial (1), isopolygodial (2), and drimenol (3) obtained from the bark of *Drimys winteri* F. and seven synthetic derivatives, were tested in vitro against a unique panel of bacteria, fungi, and oomycetes with standardized procedures against bacterial strains *K. pneumoniae*, *S. typhi*, *E. avium*, and *E. coli*. The minimum inhibitory concentrations and bactericidal activities were evaluated using standardized protocols. Polygodial (1) was the most active compound, with MBC 8 µg/mL and MIC 16 µg/mL in *E. avium*; MBC 16 µg/mL and MIC 32 µg/mL in *K. pneumoniae*; MBC 64 µg/mL and MIC 64 µg/mL in *S. typhi*; and MBC 8 µg/mL and MIC 16 µg/mL and MBC 32 µg/mL and MIC 64 µg/mL in *E. coli*, respectively. The observed high potency could be attributed to the presence of an aldehyde group at the C8-C9 position. The antifungal activity of 1 from different microbial isolates has been evaluated. The results show that polygodial affects the growth of normal isolates and against filamentous fungi and oomycetes with MFC values ranging from 8 to 64 µg/mL. Sesquiterpene drimanes isolated from this plant have shown interesting antimicrobial properties. © 2024 by the authors.

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