

Structure Elucidation and Characterization of Microbial 2-Tridecyl Sophorosides (Biosurfactants)

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To produce novel types of sophorose lipids containing an odd number of carbon atoms in the lipophilic moiety, *Candida bombicola* ATCC 22214 was grown in 500-ml flask cultures with glucose as main carbon source, and additionally, 2-tridecanone as co-substrate. After solvent extraction, the crude product mixture was separated into pure fractions, and each fraction was analysed via NMR and mass spectroscopy. This effective strategy generated five new glycolipids, 2-tridecyl sophorosides, which differed in the number of glucose units, and acetyl and hydroxy groups, respectively. Based on these compounds, a proposal for the possible biosynthetic pathway was deduced. Two compounds of the mixture, mono- and diacetylated 2-tridecyl sophorosides, respectively, were able to lower the surface tension of water from 72 mN m⁻¹ to 32 mN m⁻¹ and the interfacial tension between water and *n*-hexadecane from 43 mN m⁻¹ down to 4 and 3 mN m⁻¹. Thus, both compounds possess a very good surfactant behaviour. Moreover, it was observed that the new products inhibit the growth of particular Gram-positive bacteria, and they indicate potential for antitumour-promoting activity.

Key words: *Candida bombicola*, Alkyl Sophoroside, 2-Tridecanone