Herpetopanone, a diterpene from *Herpetosiphon aurantiacus* discovered by isotope labeling.

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Details

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Abstract

The genome of the predatory bacterium Herpetosiphon aurantiacus 114-95T harbors a number of biosynthesis genes, including fourterpene cyclase genes. To identify the terpenes biosynthesized from H. aurantiacus 114-95T, we fed the strain with 13C-labeledglucose and, subsequently, searched for characteristic mass shifts in its metabolome. This approach led to the discovery of a newnatural product, of which the isotope pattern is indicative for a diterpene originating from the methylerythritol phosphate pathway.After large-scale fermentation of H. aurantiacus 114-95T, the putative diterpene was isolated in sufficient quantity to enable NMR-based structure elucidation. The compound, for which the name herpetopanone is proposed, features a rare octahydro-1H-indenylskeleton. Herpetopanone bears resemblance to cadinane-type sesquiterpenes from plants, but is structurally entirely unprecedentedin bacteria. Based on its molecular architecture, a possible biosynthetic pathway is postulated.

Beteiligte Forschungseinheiten

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