Enantiospecific (S)-(+-) Linalool Formation from 6-Myrcene by Linalool Dehydratase-Isomerase

Frauke Lüddeke and Jens Harder*

Department of Microbiology, Max Planck Institute for Marine Microbiology, Celsiusstr. 1, D-28359 Bremen, Germany. Fax +49-421-2028580. E-mail jharder@mpi-bremen.de

* Author for correspondence and reprint requests

Z. Naturforsch. 66c, 409 – 412 (2011); received December 21, 2010/March 22, 2011

The linalool dehydratase-isomerase from Castellaniella defragrans strain 65Phen catalyzes in the thermodynamically unfavourable direction the hydration of 6-myrcene to linalool and further the isomerization to geraniol, the initial steps in anaerobic 6-myrcene biodegradation. We have now investigated the stereochemistry of this reaction. (S)-(+-) Linalool is formed with an enantiomeric excess of at least 95.4%. (R)-(–) Linalool was not detected. This indicates an introduction of the hydroxy group on the si-face of 6-myrcene.

Key words: Stereochemistry, Hydratase, Chiral Chromatography