Transformations of Steroids by Beauveria bassiana

Ewa Huszcza*, Jadwiga Dmochowska-Gładysz, and Agnieszka Bartmańska

Department of Chemistry, Agricultural University, Norwida 25, 50-375 Wrocław, Poland.
Fax: 0048-071-3283576. E-mail: huszcza@ozi.ar.wroc.pl

* Author for correspondence and reprint requests

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The course of transformations of testosterone and its derivatives, including compounds with an additional C1,C2 double bond and/or a 17α-methyl group, a 17β-acetyl group or without a 19-methyl group, by a Beauveria bassiana culture was investigated. The fungi promoted hydroxylation of these compounds at position 11α, oxidation of the 17β-hydroxyl group, reduction of the C1,C2 or C4,C5 double bonds and degradation of the progesterone side-chain, leading to testosterone. The structure of 4-ene-3-oxo-steroids had no influence on regio- and stereochemistry of hydroxylation. In a similar manner, dehydroepiandrosterone was hydroxylated by Beauveria bassiana at position 11α, however, a small amount of 7α-hydroxylation product was also formed.

Key words: Beauveria bassiana, Biotransformation, Steroids