In vitro anti-Malassezia activity of xanthorrhizol isolated from Curcuma xanthorrhiza Roxb

Y. Rukayadi [1,2] and J.-K. Hwang [1]

1 Department of Biotechnology & Bioproducts Research Center (BRC), Yonsei University, Seoul, Korea
2 Biopharmaca Research Center and Research Center for Bioresources & Biotechnology, Bogor Agricultural University, Bogor, Indonesia
Correspondence to Jae-Kwan Hwang, Department of Biotechnology and Bioproducts Research Center (BRC), Yonsei University, 134 Sinchon-dong, Seodaemun-gu, Seoul 120-749, Korea.
E-mail: jkhwang@yonsei.ac.kr

Abstract

Aims: This study aimed at investigating the anti-Malassezia activity of xanthorrhizol (XTZ) isolated from Curcuma xanthorrhiza Roxb. against Malassezia furfur ATCC 14521 and Malassezia pachydermatis ATCC 14522.

Methods and Results: The in vitro susceptibility tests for XTZ were carried out in terms of minimum inhibitory concentration (MIC) and minimum fungicidal concentration (MFC), using broth microdilution method with endpoint after 48 h. Time-kill curves were determined at concentrations ranging from 0 to 25 μg ml^{-1}. The MIC values of XTZ against M. furfur and M. pachydermatis were 1·25 and 0·25 μg ml^{-1}, respectively. The MFC of XTZ was 5 μg ml^{-1} for M. furfur and 2·5 μg ml^{-1} for M. pachydermatis. Time-kill curves demonstrated that treatment with 25 μg ml^{-1} of XTZ for 5 h was able to kill 100% of M. furfur, while 20 μg ml^{-1} of XTZ for 15 min killed M. pachydermatis completely.

Conclusion: XTZ shows potential as an anti-Malassezia agent for inhibiting the growth of M. furfur ATCC 14521 and M. pachydermatis ATCC 14522 in vitro.

Significance and Impact of the Study: XTZ may be a useful alternative for treating Malassezia-associated diseases.

Keywords : anti-Malassezia • in vitro • Malassezia furfur • Malassezia pachydermatis • xanthorrhizol

2006/0671: received 11 May 2006, revised 22 September 2006 and accepted 25 September 2006