

PP56. MICROBIAL TRANSFORMATION OF CURCUMIN BY 25 DIFFERENT MICROORGANISMS

Sami Koray YETİM^{1*}, Özge Özşen BATUR¹

¹Department of Chemistry, Faculty of Arts and Sciences, Osmangazi University,
Eskişehir, Türkiye

*Corresponding Author. E-mail: kyetim10@gmail.com

Nowadays, many drugs are produced synthetically. However, some chemicals are very costly and difficult to synthesize or isolate from their natural sources. It has been observed that the microbial transformation method, which is frequently used today, can transform natural substances into different metabolites. (1).

Curcumin is obtained from the turmeric (*Curcuma longa*) plant, which is a type of ginger. Curcumin, the main bioactive component of the turmeric plant, exhibits anti-inflammatory, antibacterial, antioxidant and anti-atherosclerotic properties (2).

In this study, preliminary scale studies of microbial transformation of curcumin in *a*-medium were carried out with 25 different microorganisms. For each microorganism, 1 positive control, 1 negative control and a microbial transformation flask were prepared. When the microorganisms reached the appropriate maturity, curcumin was added and left for transformation under suitable conditions. At the end of the 14th day, ethyl acetate (EtOAc) was added to the amount of medium in each flask and extracted. Afterwards, EtOAc was removed in the centrivap device and thin layer chromatography was performed on each microorganism. The metabolites were found in extracts from the microbial transformation of curcumin by *Penicillium claviforme* MR 376. While M1 and M2 compounds are more polar than curcumin; M3 and M4 are more nonpolar than curcumin (3).

Keywords: Curcumin, Microbial Transformation, Thin Layer Chromatography.

Acknowledgements: The authors would like to thank Prof. Dr. Fatih Demirci (Anadolu University, Eskişehir) for supporting this work. This work is part of the MSc thesis of Sami Koray YETİM and was supported by Eskişehir Osmangazi University Scientific Research Projects Coordination Unit under grant number "FYL-2022-2456".

REFERENCES

- [1] Civişov, E. (2016). *p-Simenin Mikrobiyal Biyotransformasyonu* (Doctoral dissertation, Anadolu University (Türkiye)).
- [2] Erkul, C., Özenoğlu, A., & Elif, R. E. İ. S. (2021). Zerdeçalın Genel Sağlık Üzerine Etkileri. *Türkiye Sağlık Bilimleri ve Araştırmaları Dergisi*, 4(2), 76-87. <https://doi.org/10.51536/tusbad.950788>
- [3] Özşen, Ö. (2017). *Abiyetik asit, betulin, hidroksidiizoforon ve oleik asitin autoformasyon tepkimeleri ve metabolitlerin in vitro biyolojik aktiviteleri*. (Doctoral dissertation, Eskişehir Osmangazi Üniversitesi (Türkiye)).