

OP15. APPLICATION OF DEEP EUTECTIC SOLVENTS FOR ROSMARINIC ACID EXTRACTION IN SOME MEDICINAL PLANTS

Tuğba İDUĞ *

Istanbul Medipol University, School of Pharmacy, Department of Pharmacognosy

*Corresponding Author. E-mail: tidug@medipol.edu.tr

The use of conventional organic solvents, such as hexane, ethyl acetate, chloroform, acetone, and methanol, has limited the application of green chemistry principles. Green solvents, which are non-toxic, biodegradable, and biocompatible, have been proposed as alternatives to these organic solvents. As a prospective environmentally friendly solvent, deep eutectic solvents (DES) have been developed as a replacement for organic solvents [1].

The purpose of this study is to compare the application of green chemistry and traditional extraction methods on various medicinal plants containing rosmarinic acid. Three different choline chloride based deep eutectic solvents (DES) in molar ratio were used for extraction of rosmarinic acid from *Rosmarinus officinalis*, *Ocimum basilicum* and *Ocimum minimum*. The solvents were choline chloride-phenol (1:3), choline chloride- lactic acid (1:3) and choline chloride-fructose (1:3) and water %40. To reduce the viscosity of the prepared DES systems, it is suggested that water be added. Methanol was used for comparison. Quantitation of rosmarinic acid in extracts obtained by DES was carried out using HPLC analysis. Since each DES yielded comparable results, it was decided to continue the study with lactic acid-containing DES. It was determined through analysis that DES extracted rosmarinic acid more effectively than methanol. For the extraction of rosmarinic acid from medicinal plants, our results indicate that deep eutectic solvents are a safe and effective alternative to methanol.

Keywords: Rosmarinic acid, deep eutectic solvents, medicinal plants, extraction methods, HPLC.

REFERENCE

- [1] Barbieri, J. B., Goltz, C., Batistão Cavalheiro, F., Theodoro Toci, A., Igarashi- Mafra, L., & Mafra, M. R. (2020). Deep eutectic solvents applied in the extraction and stabilization of rosemary (*Rosmarinus officinalis* L.) phenolic compounds. *Industrial Crops and Products*, 144(August 2019), 112049. <https://doi.org/10.1016/j.indcrop.2019.112049>.