Slovak Society of Chemical Engineering
Institute of Chemical and Environmental Engineering
Slovak University of Technology in Bratislava

PROCEEDINGS

39$^{\mathrm{th}}$ International Conference of Slovak Society of Chemical Engineering

Hotel Hutník
Tatranské Matliare, Slovakia
May 21–25, 2012

Editor: prof. J. Markoš

ISBN: 978-80-89475-04-9, EAN: 9788089475049

Antov, M., Jugovic, B., Gvozdenovic, M., Knezevic-Jugovic, Z.: Partitioning and purification of cellulases in aqueous two-phase system, Editor: Markoš, J., In *Proceedings of the 39th International Conference of Slovak Society of Chemical Engineering*, Tatranské Matliare, Slovakia, 1346–1346, 2012.

Partitioning and purification of cellulases in aqueous two-phase system

Mirjana Antov[a,✉], Branimir Jugović[b], Milica Gvozdenović[c] and Zorica Knežević Jugović[c]

[a] *University of Novi Sad, Faculty of Technology, Novi Sad, Serbia*
[b] *Serbian Academy of Science and Arts, Institute of Technical Science, Belgrade, Serbia*
[c] *University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia*
✉ *Corresponding author: mantov@uns.ac.rs*

Keywords: aquoeus two-phase system; cellulases; separation; purification.

Aqueous two-phase systems can be formed by mixing the solutions of two mutually incompatible polymers or polymer and salt above critical concentrations and represent media that are very well suited for the separation and purification of biomolecules. The basis of separation is uneven distribution of biomolecules between two phases both having high water content. This so-called biocompatibility of phases allows preservation of biomolecules' native structure while the presence of polymer can even improve their stability. Partitioning is governed by numerous factors that can be manipulated to achieve desired separation and purification results, which makes aqueous two-phase system very flexible for application.

Cellulases, enzymes belonging to family of glycosyl hydrolases, play key role in organic carbon turnover and have important and wide application in industry. Extraction of enzymes in aqueous two-phase systems has been recognized as useful technique in downstream processing for their isolation and purification. In this study, partitioning of cellulases in polyethylene glycol/dextran and polyethylene glycol/salt two-phase systems was investigated with the aim to determine the most appropriate molecular weight of polymers, kind of salt and concentration of aqueous two-phase constituents at which the highest possible yield and purification factor in the top phase can be achieved.