

Technological properties of yeast produced surface active compounds in order to their application in clean-up technologies – comparative study

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Biologically produced surface active compounds (surfactants) offer a wide range of applications in clean-up technologies. Their great potential may be applicable especially in the field of environmental remediation like soil washing with the advantage of lower toxicity and higher biodegradability than synthetic surfactants. In addition to currently studied bacterial production of surfactants (rhamnolipids), surfactants produced by lipophilic yeast with non-toxic and non-pathogenic status of organisms seems to be very promising. Final output of the project represents preparation of this yeast biosurfactant intended for washing of matrices contaminated by non-aqueous phase liquids (NAPL). Production of these substances in a group of nine lipophilic yeasts was studied within the project. Comparative study deals with monitoring capabilities using the yeast metabolic model and type of extracellular emulsification of NAPL substances with regard to metabolic and physiological characteristics of these yeasts. Modified *oil spreading* technique (based on the principle of surface tension reduction caused by surfactant) was used as the monitoring tool. In the comparative framework, properties of yeast biosurfactants, rhamnolipids and synthetic surfactants were studied. The most promising type of surfactant should substitute synthetic agents currently used in the emulsification of NAPL contamination. Knowledge about yeast producer metabolisms a physiology becomes the particular level for choose of the suitable biotechnological production mode.