Kolwzan, B. Possible Biosurfactant Applications in Water and Soil Remediation Processes. *Ochrona Srodowiska* 2014, Vol. 36, No. 3, pp. 3–18.

Abstract: Biosurfactant production is mainly related to hydrophobic nutrient uptake by microorganisms. It was demonstrated that biosurfactants might successfully substitute for synthetic surface-active agents not only in different branches of industry, medicine and agriculture but also in the environmental field. Bioremediation and processes related to extraction of contaminants via so called soil flushing are their principal applications in the environmental protection. Biosurfactants increase the mineral oil hydrocarbon solubility, allowing for their use as nutrients by microorganisms. Biosurfactants are also useful in processes of dense non-aqueous-phase liquid (DNAPL) removal from soil by means of soil flushing. Moreover, anionic biosurfactants may also be used for so called washing of soils contaminated with trace metals. Efficacy of the contaminated soil remediation with biosurfactants depends on many biological and physico-chemical factors, related to *e.g.* the contamination type, concentration and its age, soil heterogeneity as well as type and concentration of the biosurfactant used. Due to the amounts of surface-active agent used it is necessary to further reduce the costs of biosurfactant production.

Keywords: Microorganism, hydrophobic organic compounds, metals, bioremediation, soil washing, soil flushing.