

Micellar enhanced ultrafiltration (MEUF) for soil washing effluent from heavy metal contaminated soil

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Heavy metals are the major contaminants in the soil and groundwater with their high toxicity and the non-biodegradability. Soil washing has taken the most prevalent position among the many soil remediation techniques with its economical operation cost and wide applicability for various contaminants. However, a drawback of this technique is that it requires the treatment of the effluent which contains heavy metals and chelating agents used to extract heavy metals from the soil.

In this study, MEUF was introduced to the soil washing effluent from the lab scale soil washing of heavy metal contaminated soil. When MEUF was operated in the optimal condition, removal efficiency of the four metals (Cd, Cu, Pb, and Zn) reached 92%, and the COD reduction did 80%. However, the flux decline was severe like the other membrane technologies.