ABSTRACT

In present study surfactants derived from plants have been used for removal of crude oil from contaminated soil. Crude oil removal and optimum level of parameters were investigated in 25 runs of L₂₅ (5⁵) Taguchi Orthogonal Array. Experimental data was analyzed in Minitab-15 and Statgraphics. Parameters optimized by Taguchi Orthogonal Array were pH, time, temperature, surfactant concentration and agitation. Crude oil removed from plant based surfactants (galloyl esters) was 86.51% at optimum conditions i.e. pH 8.0, 25% surfactant solution, 180 rpm, incubation period of 40 hours at 42 °C. Our study presented the effectiveness of galloyl esters in remediation of crude oil contaminated soil. By considering results of this study, applicability of soil washing for crude oil removal from contaminated soil can be suggested at field scale.