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Optimization of Media Using Taguchi Method for Production of Biosurfactant Utilising Agro-waste and Properties of Biosurfactant Produced by *Paenibacillus dendritiformis* Isolated from Petroleum-contaminated Soil†

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Abstract: Agro-waste of mustard oil mills was used as partial replacement of pure reagents in media to produce biosurfactant by *Paenibacillus dendritiformis* isolated from petroleum-contaminated soil. The process was optimized through the construction of a response model using Taguchi experimental design, leading to a 28.23% increase in performance characteristics and a 13.23 % increase in yield of biosurfactant. The production medium consisted of carbon @7.9 %, nitrogen @ 1.1% and agitation rate 180 r.p.m. This was provided by glucose 2%, ammonium nitrate 0.2%, mustard oil seed meal 10% in Luria Bertani broth. The biosurfactant produced retained its properties during exposure to a wide range of pH values (5–11), high temperatures (up to 121°C), and high salinities of up to 5%.

Keywords: agro-industrial waste; Taguchi design; biosurfactant.

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Conflicts of Interest

The authors declare no conflict of interest.