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(51) International classification	:A01N0063000000, G06F0111060000, C12R0001385000, A01N0063100000, C12R0001380000	(71)Name of Applicant : <b>1) Dr. P. POONGUZHALI</b> Address of Applicant :#12, SWAMINATHAN STREET, NELLIKUPPAM, CUDDALORE, TAMIL NADU, INDIA - 607105 Tamil Nadu India
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(57) Abstract :

This invention relates to composition and process for the preparation of bacterial biosurfactant was achieved by optimization using Response surface methodology (RSM). The stable ready to use biosurfactant formulation is stable for 24 months and used to control pests. The selected strain *Pseudomonas aeruginosa* PBS29 (Accession number MG273769) was confirmed using 16S rRNA sequencing. Rice water (20%, v/v) was chosen as the cheapest carbon source for < formulating medium to optimize biosurfactant production using Central Composite Design. Enhanced biosurfactant" yield of 9.35 g/l was attained through RSM by 0.59-fold higher than preliminary analysis. The model was significant with a regression coefficient of 0.98. The optimal condition was identified as 1.18% nitrogen source [glutamic acid] (w/v), pH 6.8, temperature at 37.4 °C, 2.5% inoculum size (v/v), and 167.9 rpm agitation, respectively. Furthermore, the detection of rhl gene, TLC, and FT-IR spectroscopic analysis suggested the biosurfactant as rhamnolipid. In-vitro antifungal activity and biocontrol strategy of the biosurfactant demonstrated against *Fusarium wilt* of *Abelmoschus esculentus* at the concentration of 100 ug/ml both by soil drenching and foliar spray by pot trial.

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