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Biodegradation of bispyribac sodium by a novel bacterial consortium BDAM: Optimization of degradation conditions using response surface methodology

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Highlights

- Three bacterial strains capable of degrading BS were isolated from herbicide contaminated site and characterized.
- Developed bacterial consortium (BDAM), can efficiently degrade up to 97% of the added bispyribac sodium in 21 days.
- The use of RSM is an important approach to study the effect of multiple environmental variables on BS degradation.
- Maximum degradation was observed at inoculum size 0.4 g/L, temperature 37ºC and pH 8.

Abstract

Bispyribac sodium (BS), is a selective, systemic and post emergent herbicide used to eradicate grasses and broad leaf weeds. Extensive use of this herbicide has engendered serious environmental concerns. Hence it is important to develop strategies for bioremediation of BS in a cost effective and environment friendly way. In this study a bacterial consortium named BDAM, comprising three novel isolates *Achromobacter xylosoxidans* (BD1), *Achromobacter pulmonis* (BA2), and *Ochrobactrum intermedium*