Analisis kemampuan bacillus cereus inacc b284 dan pseudomonas aeruginosa inacc b290 kultur tunggal serta campuran dalam degradasi minyak jelantah = Capability analysis of bacillus cereus inacc b284 and pseudomonas aeruginosa inacc b290 in single and mixed cultures for degradation of used cooking oil

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Abstrak

ABSTRAK
Penggunaan minyak goreng oleh masyarakat meningkatkan produksi minyak jelantah. Pembuangan minyak jelantah secara langsung ke saluran air menyebabkan pencemaran lingkungan. Biodegradasi minyak jelantah diperlukan untuk mengurangi pencemaran lingkungan. Bacillus cereus dan Pseudomonas aeruginosa diketahui merupakan bakteri yang efektif mendegradasi minyak jelantah. Penelitian ini bertujuan untuk menganalisis kemampuan kultur tunggal dan campuran B. cereus InaCC B284 serta P. aeruginosa InaCC B290 dalam degradasi minyak jelantah. Biodegradasi dilakukan menggunakan medium BHB dengan minyak jelantah konsentrasi 25 v/v selama 23 hari pada suhu ruang 27--30 C . Parameter nilai optical density OD , pH, dissolved oxygen DO , dan kadar asam lemak diukur selama proses biodegradasi. Perlakuan perbedaan kultur bakteri menghasilkan peningkatan signifikan P < 0,05 nilai OD, penurunan signifikan P < 0,05 nilai pH, dan penurunan tidak signifikan nilai DO P > 0,05 selama biodegradasi. Analisis kualitatif dan kuantitatif asam lemak menggunakan Gas Chromatography GC menunjukkan bahwa kultur tunggal B. cereus InaCC B284 mampu mendegradasi tujuh 7 jenis asam lemak, kultur tunggal P. aeruginosa InaCC B290 mampu mendegradasi empat 4 jenis asam lemak, dan kultur campuran mampu mendegradasi sebelas 11 jenis asam lemak.
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ABSTRACT<>br>
The use of cooking oil by various communities increased the production of used cooking oil. The disposal of used cooking oil directly into waterways causes environmental pollution. Bacillus cereus and Pseudomonas aeruginosa were known to be effective for degrading used cooking oil. Used cooking oil biodegradation is needed to reduce environmental pollution. The research was carried out to determine the capability of single and mixed cultures of B. cereus InaCC B284 and P. aeruginosa InaCC B290 in the degradation of used cooking oil. Biodegradation process was carried out using Bushnell Haas Broth BHB medium containing 25 v v used cooking oil for 23 days at room temperature 27 30 C . Optical density OD , pH, dissolved oxygen DO , and fatty acid content measured during the biodegradation process. Different bacterial cultures treatment resulted in the significant increase of OD P 0.05 , the significant decrease of pH P 0.05 , and the insignificant decrease of DO P 0.05 during the biodegradation. Qualitative and quantitative fatty acid analysis using Gas Chromatography GC revealed that single culture of B. cereus InaCC B284 was able to degrade seven 7 types of fatty acids, single culture of P. aeruginosa InaCC B290 was able to degrade four 4 types of fatty acids, and mixed cultures were able to degrade eleven 11 types of fatty acids.