

**Effect of synthetic N-acylhomoserine lactones on cell-cell interactions in marine *Pseudomonas* and biofilm mediated degradation of polycyclic aromatic hydrocarbons. Prof. Surajit Das, Neelam Mangwani and Supriya Kumari, Department of Life Sciences**

Effect of exogenous N-acyl homoserine lactones (AHLs) on biofilm growth, cell surface hydrophobicity, auto-aggregation and polycyclic aromatic hydrocarbons (PAHs) degradation potential of two marine *Pseudomonas* isolates (*P. pseudoalcaligenes* NP103 and *P. aeruginosa* N6P6) were evaluated in this study. Increased biofilm growth, auto-aggregation and swarming motility was observed in the presence of exogenous AHLs (3OC8-HSL and 3OC12-HSL) resulting in enhanced phenanthrene and pyrene degradation. *P. pseudoalcaligenes* NP103 biofilm was able to degrade up to 79% of phenanthrene and 49 % pyrene in 7 d whereas 85.6% phenanthrene and 47.56% pyrene degradation was achieved using *P. aeruginosa* N6P6 biofilm. 3OC8-HSL significantly ( $P < 0.05$ ; Tukey's HSD test) potentiated the phenanthrene and pyrene degradation by *P. pseudoalcaligenes* NP103 biofilm (89% and 65.5%), whereas the phenanthrene and pyrene degradation potential of *P. aeruginosa* N6P6 biofilm increased significantly ( $P < 0.05$ ; Tukey's HSD test) in presence of 3OC12-HSL (97.4 % and 54.39%). Both the isolates followed catechol pathway for PAHs degradation. The findings suggest that AHL can significantly affect the biodegradation performance specifically when bacteria are present in biofilms. More in *Chem. Eng. Journal*, 302: 172-186 (2016)

