

### Microbial adhesion to soil surface for *Pseudomonas putida* NCIB 9816-4

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The cause of initial microbial adhesion to soil was investigated in this study. Three possible causes of microbial adhesion are secretion of EPS, microbial surface appendages and surface property changes like cell surface hydrophobicity and zeta potential.

Naphthalene and *P. putida* NCIB 9816-4 were used as a model soil contaminant and a soil microorganism capable of degrading naphthalene. The mutant *P. putida* NCIB 9816-4, which did not degrade naphthalene, was used as a control strain. Adhesion of wild type in the exp. phase to soil increased as naphthalene concentrations in the soil slurries increased, whereas the adhesion to soil of the mutant type was decreased.

Both wild type and the mutant type have a similar cell surface. Obtained a mutant of *P. putida* NCIB 9816-4 that is different from the wild type only with respect to the biodegradation capability of naphthalene. When comparing the adhesion of the wild type and the mutant type to soil, cell appendages and EPS was not responsible for the initial cell binding to the soil. It was believed that the surface structure change of cell and soil was affected initial microbial adhesion.