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Development of genetically engineered microbial strains for degradation of recalcitrant pesticide residues

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It has been generally noted, that specific microorganisms (especially *Pseudomonas* spp.) are capable of degrading only one or very few structurally similar chemicals. Genetic engineering may provide the necessary tools towards the achievement of this goal. The two experimental strategies that could be followed for this purpose are: a) restructuring of already existing biodegradative pathways for increased efficiency and b) assembling an entirely new pathway i.e. designing a new pathway in paper, then recruiting required enzymes from various sources (degradative microorganisms) and constructing a pathway which can degrade a variety of pesticide and other xenobiotic residues. After successfully cloning all the required genes in a suitable host strain where they get expressed efficiently attempts could be made to transfer these new pathways to a nitrogen fixing, free-living, soil microorganism to serve a dual purpose of cleaning up the environment and improving the fertility of the soil.