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# ISOLATION AND CHARACTERIZATION OF CARBOFURAN DEGRADING BACTERIA FROM CULTIVATED SOIL

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**ABSTRACT: A gram negative bacterium, capable of degrading carbofuran (2, 3-dihydro-2, 2-dimethyl-7-benzofuranoyl-N-methyl-carbamate) was isolated from the soil suspension collected from carbofuran treated soil. Sample of carbofuran treated soil was incubated in mineral salts medium supplemented with carbofuran (20µg/ml) at 28$^0$ C for 4 days and bacterial strain was isolated from the sample. Morpho-physiological characteristics and biochemical properties as well as DNA sequencing of 16S rRNA gene confirmed the bacteria to be a member of *Enterobacter* species. The optimum culture condition of *Enterobacter* sp. for carbofuran degradation was at pH 7.0 and temperature 37$^0$ C. The rate of reduction of carbofuran was determined by using High Performance Liquid Chromatography (HPLC).The concentration of carbofuran was decreased with time and after 10 days incubation it was found to be approximately 71%. The isolated bacteria harboured indigenous plasmids. All of the plasmids were lost when the organism was treated with ethidium bromide (100µg/ml). Loss of the plasmids resulted in disability of the bacteria to grow on media containing carbofuran. Phenotypic testing of wild type and cured strain revealed that the gene(s) responsible for carbofuran degradation may reside upon the plasmids.**

***Key words*:** Carbofuran, biodegradation, bacteria, plasmids

1986), *Arthrobacter sp*. (Ramanand *et al*, 1988) and *Sphingomonas* sp. (Feng *et al*, 1997). These microorganisms