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ABSTRACTS

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453 DEGRADATION OF 3-CHLOROBENZOIC ACID AND PHENOL BY PURE AND DEFINED MIXED CULTURES OF *PSEUDOMONAS* SPP.

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Phenol and halogenated aromatic compounds are widely distributed in the environment which contribute to chemical pollution. Two strains of bacteria tentatively identified as *Pseudomonas* spp. were obtained by a semicontinuous column enrichment technique. *Pseudomonas* strain 3MT could utilize very high concentrations of 3-chlorobenzoic acid (3-CBA) and 4-chlorobenzoic acid but was unable to grow on phenol when present as single substrate or as a co-substrate with 3-CBA. Strain CP-5, which could utilize phenol as the sole source of carbon was unable to grow in the presence of 3-CBA. However, strains 3MT and CP-5 together were able to degrade a mixture of 3-CBA and phenol. The interesting observation was that the metabolites of ortho- and metapathway do not seem to inhibit either the pathways operative in these strains as against the literature reports.

454 LEAD INDUCED NEUROTOXICITY IN RATS : *RUPAM AHLUWALIA* and *K. D. GILL*

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Leads merits special attention as an environmental pollutant because of its cumulative property in the living systems. It has deleterious effect on both the hemopoietic system & the CNS. The present experiments were designed to study the extent of metal accumulation in different regions of rat brain, and also on Calmodulin (CaM) and CaM dependent Ca^{+2}-Mg^{+2}ATPase enzyme. The experimental animals were administered 10 mg Pb as Pb acetate/kg b.wt. i.p. for 20 days whereas the controls received physiological saline concurrently. The level of zinc protoporphyrin (ZPP) in blood was used as an index for lead toxicity. An exponential increase of blood ZPP levels was observed during the course of treatement. The order of lead accumulation in the different regions of brain was cerebellum > cerebral cortex > brain stem > olfactory lobe = corpus striatum. The activity of CaM was seen to have increased considerably. On the other hand there was a marked inhibition in the activity of CaM dependent Ca^{+2}-Mg^{+2}ATPase & also a significant decrease in the protein content of the lead treated group. However lead had no effect on the electrophoretic mobility of CaM.

455 *EFFECT OF CO-EXPOSURE TO ASBESTOS & KEROSENE ON ANTIOXIDANT DEFENSE MECHANISMS IN RAT LUNG : J. M. ARIF, S. G. KHAN, N. MAHMOOD, L. D. JOSHI* and *Q. RAHMAN*

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Reactive oxygen species (ROS) play an important role in asbestos induced pathological changes in the lungs. Kerosene, a light distillate of petroleum, has also been found to generate oxidative stress. It is possible that asbestos factory workers using kerosene as domestic fuel can increase the asbestos induced lung pathologies. Based on these facts, the present study was designed to see the effect of co-exposure to chrysotile (Ch) (5 mg) and kerosene (K) (0.05 ml) on primary and secondary antioxidant enzymes (PSAE), lipid peroxidation (LPO) as well as ascorbic acid (AA) and reduced glutathione (GSH) in rat lungs after 1,4,8,16,30,90 and 150 days post intra-tracheal inoculation. Exposure to either K or Ch results in a significant increase in the activities of PSAE and products of LPO. At the advance stages of disease, significant decrease in the AA and GSH levels was recorded. However, co-exposure to Ch and K led to a synergistic increase in both the activities of PSAE and products of LPO and a higher level of decrease in GSH and AA levels were observed. From the above studies it is inferred that simultaneous exposure of asbestos and kerosene induce more oxidative stress, this further deteriorate the situation which may result in higher incidence of asbestos induced lung diseases.