

# ENZYME MARKERS OF OXIDATIVE STRESS IN PETROLEUM DISTRIBUTION INDUSTRY WORKERS, NIGERIA

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Exposures in chemically hostile environments often result in generation of oxidative stress within the body, due to excessive free radicals production. Body's success in dousing potential ill-events associated with free radicals depends on availability of equally potent agents (antioxidants) that counteract free radicals' activities. Excess of free radicals over body's antioxidants reserve (as may happen following exposure to toxic organic pollutants in an industrial environment), often favour establishment of sundry health effects. This study examined the status of oxidative stress parameters as possible markers of exposure to toxic organic pollutants among petroleum distribution workers in Nigeria. Blood (5 ml) was collected from each of the 50 study participants [35 oil workers (exposed), and 15 non-oil workers (referents)]. Standard assay methods were adopted for analyses of the parameters of interest. Results showed that for oil workers, lipid peroxidation substance (malondialdehyde (MDA), 37.9-96.70(59.31±11.90 mg/dl), catalase (CA), 1.42-5.40(mean=3.08±0.92 iu/L), Superoxide dismutase (SOD), 46.39-68.12(58.04±11.90 iu/l), Glutathione-s transferase (GST), 1.25-2.40(1.75±0.36 iu/L), glutathione peroxidase(GPx), 154.34-874.60( 521.81±154.40 iu/L); while among the non-oil workers, the values were: MDA, 30.3-60.7 (49.58±8.12 mg/dl), CAT, 2.06-4.08(3.29±0.61 iu/L), SOD, 54.50-79.02(68.24±8.70 iu/L), GST, 1.66-3.02(2.38±0.37 iu/L), and GPx, 220.26-823.15(687.94±97.30 iu/L) respectively. Among the oil workers, MDA was significantly higher ( $P<0.006$ ) while the antioxidant parameters were significantly lower ( $p<0.0001$ ), whereas the reverse was the case among the non-oil workers, because MDA was significantly lower ( $P<0.001$ ), even as most antioxidant enzymes were significantly higher in them. Higher MDA in the face of dwindling antioxidants status indicates higher presence of free radicals in the oil workers, potentially depleting antioxidant enzymes reserves, thus revealing that antioxidant enzymes can indeed serve as putative markers of oxidative stress among petroleum distribution workers in Nigeria.

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