

**[P-79]**

## **Nephrotoxicity Studies of 3-Monochloropropane-1,2-diol**

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Certain chlorinated propanols occur as contaminants in hydrolysed vegetable proteins. Processing of defatted vegetable proteins by traditional hydrochloric acid hydrolysis leads to the formation of 3-MCPD. The objective of this study was to determine the nephrotoxicity of 3-MCPD. SD rats in control, low, intermediate and high groups were daily given saline, 3-MCPD at doses of 20, 40 and 80 mg/kg body weight for from 1, 2, 3 and 4 weeks. Result of the clinical chemistry and histopathological studies show that urea nitrogen(BUN) increase and kidney cortex tubular necrosis in the female high dose groups. And MCPD decreases oxygen consumption in the dose-dependent manner in vitro assay using rat renal cortical slice. In addition, from the result of in vitro MCPD-induced cytotoxicity and flow cytometric cell cycle analysis in NRK-52E and LLC-PK1 cell, which are renal proximal tubular cell orgin, IC50 value of MCPD determined to be near 100uM and MCPD induced G1 phase-arrest of proximal tubule. MCPD induced nephrotoxicity may depend on the decrease of ATP production for transport of chemicals in cortex.

**Keyword** : nephrotoxicity, 3-MCPD,