

[P-16]**Toxicological studies on arsenic by *in vitro* alternative method**

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Epidemiological studies of arsenic have shown that chronic exposure to arsenic can result in an increased incidence of cancer of the lung, skin, bladder and liver. It is impossible that the toxicity study of arsenic in the human, we become to measure *in vitro* cytotoxicity of inorganic and organic arsenic in the human normal liver cells including Chang Liver and WRL. Cell viability was assessed by Neutral Red Uptake. The IC₅₀ values of arsenite, arsenate, MMA and DMA in the Chang Liver cell were determined to be 9.12 μ M, 79 μ M, 9.02mM and 2.97 mM respectively. And the IC₅₀ values of arsenite and arsenate were 8.97 μ M, 75.22 μ M in the WRL cell. Arsenite increased the cellular GSH level of Chang Liver in the range of 0.5 μ M to 40 μ M. Arsenate exposure decreased the GSH level slightly in the concentration of 50 μ M to 400 μ M. These results indicate that the toxic mechanism of arsenite and arsenate are different each other. The caspase-3 activity which is known to activated in apoptosis, was increased in Chang Liver treated with 30 μ M arsenite. This result indicates that arsenite induces apoptosis of liver cell.