

DETERMINATION OF ACUTE MAMMALIAN TOXICITY IN YELLOW RAIN WATER COLLECTED IN DIFFERENT AREAS IN SRI LANKA

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Coloured rain was observed in different parts of the Island in November to December 2012. As public was curious, water samples were sent to the Medical Research Institute for further investigations. In order to assess possible toxic effect on mammals it was decided to perform microbiological and mammalian toxicity studies using yellow rain water. Samples received from red and other coloured rain water was not adequate for investigations. A toxic effect of yellow rain water was assessed using laboratory animals. Skin irritation was determined using three healthy New Zealand White (NZW) rabbits of which Hair was depleted in their dorsal body area (3 cm X 3 cm) and 0.5 mL of yellow rain water was applied over the skin. Untreated area was considered as control. Changes were recorded after 3 minute, 1 hr, 3 hrs, 24 hrs, 48 hrs and 72 hrs. Eye irritation was assessed in NZW rabbits and their eyes were observed before the experiment to detect any abnormality. 0.01 mL of yellow rain water sample was inserted in to the conjunctival sac and untreated eye was considered as control. To determine the acute oral toxicity two month old ($150.5 \text{ g} \pm 15.8$) twelve female Wistar rats were allocated to the study. Plasma Alanine Amino Transferase (ALT) Aspartate Amino Transferase (AST) and creatinine levels were quantified before and after the two groups (treatment and control) of rats were allowed *adlibitum* amount of yellow rain water and normal tap water for two weeks. Moreover, All Samples used for toxicity studies were subjected to *Escherichia coli* colony count. The results revealed there were no skin or eye irritations in rabbits. No significant changes were observed in body weights, feed or water consumption in rats ingested yellow rain water. Also, there were no significant differences in ALT or AST levels compared to baseline value. However, there was a significant reduction in serum creatinine levels in test group ($p=0.001$). *E.coli* contamination was not observed in any of the samples used for toxicological investigations.

Keywords: Mammalian toxicity, Yellow rain water