

Histopathological changes caused by oral administration of water extract of *Alternanthera sessilis* (Mukunuwenna) in Swiss mice

B M G K Balasuriya¹, G S P de S Gunawardena², R P V J Rajapakse² and H R W Dharmaratne^{1*}

¹Natural Products Programme, Institute of Fundamental Studies, Kandy

²Department of Veterinary Pathobiology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya, Peradeniya

Alternanthera sessilis commonly known as “Mukunuwenna” is a popular leafy vegetable among Sri Lankans. Although, its nutritive value is well established, the toxic properties of the plant are not completely understood. A histopathological study was, therefore, carried out to investigate into the cytotoxic effect of the water extract of *A. sessilis* in Swiss mice. Six-week old Swiss mice weighing 35 ± 10 g were separated into four experimental groups (T1, T2, T3 and T4) each comprising of 3 males and 2 females. All the animals were provided with a regular diet of commercial feed and water *ad libitum* throughout the experiment. In addition to their regular diet, the animals of T1, T2 and T3 were given an oral dose of water extract of *A. sessilis* at the rate of 16.9 mg, 33.8 mg and 67.6 mg per animal per day respectively. The fourth group (T4) of mice served as the control. On the 15th day, study animals were euthanised and subjected to post-mortem examination. Micro sections of 5 μ m cut from the formalin fixed tissues embedded in paraffin wax were stained with haematoxylin and eosin (H & E) and examined under light microscope for histopathological changes.

The study animals did not show severe clinical signs suggestive of toxicity during the experiment. However, histopathological changes were found in the liver and kidney specimens of the mice fed with the plant extract. The lesions found in the mice fed with higher doses of *A. sessilis* (T3) were comparatively severe and characterised by hepatocyte degeneration and necrosis in centrilobular area associated with wide spread sinusoidal congestion.

Degeneration and necrosis of renal tubular cells accompanied by hyperaemia and congestion were seen in the kidney specimens. These pathological changes were not observed in the mice of the control group. No biochemical tests were carried out on the mice of this experiment, but is in progress in an experiment using Wistar Rats. Findings of the present study indicate that the water extract of *A. sessilis* contains cytotoxic substance/s consumption of which in high doses lead to histopathological changes in the liver and kidney tissues of Swiss mice. However, further investigations are necessary in order to understand the long-term effects of the consumption of *A. sessilis*, particularly the cooked preparations in smaller quantities.