

Evaluation of dermal toxicity study of ethanolic extract of *Morinda citrifolia* fruit in Sprague Dawley rats

ABSTRACT

Plant-based preparations are widely known to complement dermatological therapy, however toxic profiles of these plants are lacking and limited. To investigate the toxicity of *Morinda citrifolia* fruit ethanol extract applied to the skin of rats daily for 28 days, thirty female Sprague Dawley rats were grouped into five groups (n=5 rats for each group) for each study. The experimental period was set at 14 days and 28 days for acute and subacute dermal toxicity, respectively. Rats in the treatment groups were topically applied with the plant extract at three different doses; 2.5%, 5% and 10% on a shaved area of dorsal skin. For the acute toxicity study, rats received a single application of the extract on the first day of study, whereas rats in the subacute toxicity study were applied with the extract every single day for 28 days. All rats were observed for changes in appearance and behaviour and were assessed for changes of body weight, organ weight, haematology, serum biochemistry and histopathological analyses as a result of the interaction between the extract and the skin. The study indicated no mortality and sudden changes in physical appearances and behaviour of the rats. The results depicted no significant changes ($p > 0.05$) in the body weight, relative organ weight, haematological and biochemical values. No microscopic changes were detected in the assessment of the liver, kidneys and skin. It is demonstrated that *M. citrifolia* fruit extract is non-dermal toxic and these results may be useful in determining dosages for further pre-clinical evaluation and product development.

Keyword: Dermal toxicity; Haematology; Histology; Liver enzymes; Kidney parameters; *Morinda citrifolia*