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A study of the toxicological effects of *Alpinia calcarata* and *Piper betle* in rats

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The toxicological effects of two common medicinal plants, *A.calcarata* [Heen-araththa (S.)] and *Piper betle* [Bulath (S.)] on male albino rats were evaluated. Adult male albino rats were orally treated with *A.calcarata* hot water (AHW), hot ethanolic extract (HEE), *P.betle* hot water (PHW), cold ethanolic extract (PCE), distilled water (DW) or Polyvinylpyrrolidone(PVP) in the following manner. Group 1 (n=9, AHW, 1500 mg/kg), 2 (n=9, AHE, 1500 mg/kg), 3 (n=9, PHW, 1500 mg/kg), 4 (n=9, PCE, 1500 mg/kg),5 (n=9, DW, 1500 mg/kg) and 6 (n=9, PVP in DW 1500 mg/kg) per day for 42 consecutive days (6 weeks). This dose is 3 & 7 times greater than the best dose of *A.calcarata* and *P.betle* extracts which induced significant analgesia in rats. Except AHE, other dry extracts dissolved in DW. For AHE, PVP co-precipitate was prepared .Rats were checked twice daily for signs of toxicity. Average food and water intake was determined weekly up to the seventh week. The consistency of faeces and colour of urine were noted daily. After 6 weeks of treatment, blood samples were collected. Serum samples were analysed for aspartate aminotransferase (AST), alanine aminotransferase (ALT), urea and creatinine. Anticoagulan treated blood samples were analysed for red blood cell (RBC) counts, white blood cell (WBC) counts and hemoglobin (Hb) concentration. Rats were sacrificed and weighed. The gross external morphology of the liver, kidney, testis, reproductive ducts and accessory glands were observed for any toxic signs. Wet weights of the organs were recorded followed by histopathological examinations of the organs. Stomachs were observed for gastric lesions. No treatment related deaths, food and water intakes were normal. The consistency of faeces and colour of urine remained similar to that of respective controls. Except the weight of the spleen, other organ weights of treated groups were similar to those of the controls and gastric lesions were not observed. Compared to the controls, weight of the spleen had significantly increased at $P \leq 0.01$ level for both plant extracts and this suggests lymphoproliferative activity of *A. calcarata* and *P. betle*. The blood haematology, serum enzyme analysis and histopathology examination data suggest that *A. calcarata* and *P. betle* extracts are relatively non – toxic at the doses used.

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