

PROTECTION AGAINST DIETHYLNITROSAMINE (DEN) INDUCED HEPATOCARCINOGENESIS IN RATS BY AN INDIGENOUS HERBAL REMEDY

The effects of a decoction comprised of *Nigella sativa*, *Hemidesmus indicus* and *Smilax glabra* on Diethylnitrosamine (DEN) induced hepatocarcino-genesis were examined in male Wistar rats using the medium term bioassay system of Ito (1988), based on the 2-step model of hepatocarcinogenesis.

Male Wistar rats (n= 40, 8 weeks of age) were randomly divided into 4 groups (test 1, test 2, control 1 and control 2). Test 1, test 2 and control 1 were injected with DEN (200 mg/kg, i.p.) to initiate hepatocarcinogenesis. The decoction was administered orally to test 1 and test 2 at doses of 4 g/kg/day and 6 g/kg/day for 8 weeks represents the weight for weight basis to human therapeutic dose. Control 1 was fed with distilled water and control 2 was given only decoction dose 2 for 8 weeks. All the 4 groups were subjected to partial hepatectomy to promote carcinogenesis in the 3rd week. Carcinogenic potential was scored by comparing the number of Glutathione S-transferase P form (GST-P) positive cells and staining intensity of the induced GST-P positive foci in the liver of test groups with those of control 1. Treatment with decoction dose 1 and 2 reduced significantly the number of cells (71.46% and 83.86% reduction respectively, $P < 0.001$ in both cases) and staining intensity (very strongly stained foci reduced by 100% in both groups, strongly stained foci reduced by 90% and 100% respectively) when compared with rats receiving distilled water (control1). GST-P positive foci were not evident in control 2 rats indicating that decoction itself does not induce GST-P foci.

These results provide strong supportive evidence for the anti hepatocarcinogenic activity of the decoction comprised of *N. sativa*, *H. indicus* and *S. glabra*.