

## Section 2

### Synopsis

A decoction comprised of *Nigella sativa* seeds, *Cryptolepis buchananii* root bark and *Smilax glabra* rhizome is being recommended for cancer patients by a family of traditional medical practitioners of Sri Lanka. Previous investigations have demonstrated that a short-term (10 week) treatment of rats with the decoction for can significantly inhibit diethylnitrosamine (DEN) mediated expression of the tumour marker, glutathione S-transferase P form (GST-P) in rat liver, while a long-term treatment for upto 16 months could also inhibit DEN-mediated development of overt tumours as well as histopathological changes in the liver, leading to tumour development.

The objectives of the present investigation were

1. To identify the contribution made by each of the plants in the decoction prepared from *N. sativa* seeds, *C. buchananii* root bark, and *S. glabra* rhizome, to its anti-hepatocarcinogenic activity and in particular, the existence of synergism.
2. To determine the most effective anti-hepatocarcinogenic dose of the decoction.
3. To determine the most effective dose of the individual plant extract that demonstrates the greatest inhibitory effect on DEN-mediated GST-P expression

The investigation was carried out in four stages (study 1-4)

Study 1: Effects of the individual plant extracts on the expression of GST-P in rat liver.

Study 2: Dose response curve of the plant demonstrating the greatest anti-GST-P activity

Study 3: Dose response curve of the decoction prepared from all three plants. (DC)

Study 4: Comparison of the anti-GST-P effect of the DC with those of (a)*N. sativa* only, (b)*N. sativa* + *C. buchananii*, and (c)*N. sativa* + *S. glabra*

Results of the present investigation confirms the ability of a decoction comprised of *N.sativa* seeds, *C. buchananii* roots and *S.glabra* rhizome to inhibit DEN-mediated expression of GST-P in rat liver. This investigation has further demonstrated that the optimum dose of the decoction required for maximal inhibition of GST-P expression is 6g/kg/day. A comparison of the effects of individual plant extracts in the decoction shows that inhibition of GST-P expression occurs in the order *N.sativa* > *C. buchananii* > *S.glabra*, suggesting that the reduction of GST-P expression in the decoction is mainly due to *N. sativa*. and that a synergistic effect or additive effect is not demonstrated by the three individual plants in the DC . The optimum dose of *N. sativa* required to maximally inhibit DEN-mediated GST-P expression was found to be 2g/kg/day.