

M. Ira Thabrew, K.A.P.W. Jayatilaka* and D.J.B. Perera**
*Dept. of Biochemistry, **Dept. of Pathology
University of Ruhuna, Galle

The beneficial role of the medicinal plant Melothira Heterophylla against carbon tetrachloride (CCl₄) induced liver damage has been studied in albino rats by assessing the ability of the plant to protect the liver against CCl₄ mediated alterations in the liver histopathology and serum levels of aspartate aminotransferase (GOT), alanine aminotransferase (GPT) and alkaline phosphatase.

The plant extract was prepared by liquidizing 25 g of plant in 100 ml distilled water, in accordance with the method used by ayurvedic medical practitioners.

Male Sprague Dawley rats (150-200 g) were divided into five groups of 20 each. The control group was dosed orally with 2 ml/100g/day of distilled water. Group two was similarly dosed with the plant extract and killed after the end of 3, 5, or 7 days of treatment. Group three was given a single intraperitoneal dose of CCl₄ (0.2 ml/100 g body weight) and killed 24 hours later or on the 3rd, 5th or 6th day after treatment. Group four was treated with CCl₄ and after 24 hours, dosed with Melothria extract (2.0 ml/100 g/day) for a further 2, 4 or 5 days before being killed. Group five received the plant extract for 2, 5 or 7 days before being treated with CCl₄, and killed 24 h after the hepatotoxin treatment. The livers of animals from all groups were excised and fixed in buffered formalin, and the blood analysed for enzyme activities immediately.

In control rats, within 24 hours of administration of the sub-lethal dose of CCl₄, there was marked increase in serum levels of GPT, GOT and alkaline phosphatase. In these rats, livers exhibited centrilobular necrosis, fatty deposition and loss of cell boundaries. Treatment with the plant extract (before or after CCl₄ administration) markedly decreased the CCl₄ mediated alterations in the liver histopathology as well as serum enzymes. The extracts by themselves had no effect on the above parameters in normal rats. Results obtained thus provide supportive evidence in favour of the belief that Melothira heterophylla can offer protection against liver damage, at least that induced by hepatotoxins such as CCl₄.

References

- Attygalle, J. (1952) - Sinhalese Materia Medica, M.D. Gunasena & Co. Ltd. Colombo.
- Jayaweera, D.M.A. (1982) - Medicinal Plants Used in Ceylon National Science Council of Sri Lanka, Colombo.
- Thabrew, M.I., Emerole, G.O. and Subbarao, V.V. (1982) Toxicol, Lett, 14, 283-288.
- Thabrew, M.I., Joice, P.D.T.M. and Rajatissa, W. (1986) Proceedings of the 42nd Annual Sessions of the Sri Lanka Association for the Advancement of Science, Colombo.
- Conney, A.H. (1972) - In Fundamentals of Drug Metabolism and Drug Disposition (La Due, B.N., Mandel, H.G., Way, E.L. eds) - Williams and Wilkins, Baltimore.
- 09th Dec. 1987 (Wednesday) 08.45 a.m. - 09.00 a.m.