

P2: THE TOXICITY TEST OF *MOMORDICA CHARANTIA* L. SEED PROTEIN.

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ABSTRACT

The seed of the ripened fruit of *Momordica charantia* L. (Thai bitter gourd) contains an important protein named MRK29. This protein can inhibit the HIV-1 reverse transcriptase. When the concentration is increased it can also reduce the viral core protein p24 expression in HIV-infected cells. It is possible to develop an anti-HIV drug from MRK29.

The objective of this research was to study the acute and subchronic toxicity of *Momordica* seed protein. In acute toxicity tests, the *Momordica* seed protein was administered intravenously and intraperitoneally into Swiss albino mice and Wistar rats. Following a single dose, the LD₅₀ of *Momordica* seed protein in the mice and rats was approximately 1 mg/kg (i.v., i.p.). The abnormal signs and symptoms found in mice were bronchoconstriction, depression, and seizure. The abnormal signs and symptoms found in rats were bronchoconstriction, depression, seizure, and a red-black discharge from the eye. In subchronic toxicity tests, the *Momordica* seed protein was administered daily intrarectally into Wistar rats for three months at doses of 0.25, 0.5, 1, and 2 mg/kg/day. The abnormal signs and symptoms found were diarrhea and death caused by diarrhea. Moreover, 10% of the rats treated with *Momordica* seed protein at the dose of 0.25 mg/kg/day had an elevation in liver enzymes, i.e. SGOT, SGPT, LDH. But, in higher doses of *Momordica* seed protein, the level of these enzymes was reduced. The findings were parallel with histological changes in the liver, i.e. higher doses induced more fatty changes. The *Momordica* seed protein also had an irritating effect on the rectum at the site of drug administration.

In the development of this product to a pharmaceutical dosageform there should be concern about effect on the liver function and the irritating effect on the rectum of *Momordica* seed protein. Finally, more toxicological studies on the hepatotoxicity of *Momordica* seed protein should be performed to establish the safety of this product prior to its usage in humans.

Key Words : *Momordica charantia* Linn. / seed protein / toxicity test / acute / subchronic / LD₅₀ / diarrhea / irritating effect / fatty change / hepatotoxicity