

Acute Toxicity Study of *Murraya Koenigii*

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ABSTRACT : Acute toxicity study of *Murraya koenigii* was carried out against Swiss albino mice. Behavioural assessment and LD 50 study was carried out. Results of present study shows that no mortality was observed at the highest dose level. The acute toxicity studies of crude powder (MCR) and methanol extract (MME) of Curry Leaves (*Murraya koinigii*) leave showed that they did not possess any toxic effect at the studied dose levels and are safe till the dose level of 9000 mg/ kg.

KEY WORDS : Toxicity, antifungal, curry leaves, *Murraya koenigii*,

I. INTRODUCTION

Acute Toxicity Acute toxicity studies are the most common of the toxicity or safety evaluations. Acute toxicity is usually defined as the adverse change(s) occurring immediately or after short time following a single dose or short period of exposure to a substance or substances within 24 h. An adverse effect is any effect that results in functional impairment and/or biochemical lesions that may affect the performance of the whole organism or that reduce the organ's ability to respond to an additional challenge. Consequently, a chemical that enters the organism via the oral route during a restricted time and produces any adverse effect with little delay is acutely toxic. However, the term acute oral toxicity is most often used in connection to lethality and determinations of LD50

II. MATERIALS AND METHODS

Experimental animals Swiss albino mice of either sex were used for acute toxicity studies. The animals were obtained from local Indian market. All the mice were housed in standard plastic cages with stainless steel coverlids and wheat straw as bedding material at Dehradun Institute of Technology, Dehradun (UK) Department of Pharmacology. The animals were kept in a group of 6-8 per cage and facilitated with standard environmental condition of photoperiod (12:12 h dark:light cycle) and temperature ($27 \pm 2^\circ\text{C}$). They were provided with commercial rat and mice feed (Pranav Agro Industries Ltd., Amruth Brand rat & mice pellet feed) and water given ad libitum.

Drug preparation: The crude powder (MCR) and methanol extract (MME) of Curry Curry leave was suspended in water (5% gum acacia drops as -1 surfactant) and four doses of 390, 780, 1560 and 3120 mg kg body weight were prepared.

Experimental groups: Nine groups of mice, each consisting of three mice were kept for determination of acute toxicity of MCR and MME at four doses as mentioned in section 5.2.2. Amongst nine groups, one group was the control group. The bioassays were conducted according to the World Health Organization guideline for the evaluation of the safety and efficiency of herbal medicines (WHO, 1992).

Drug administration: The test drug, MCR and MME as mentioned in section 5.2.2, was administered orally (p.o.) to all the groups of mice. The control group received water. The test drug (MCR and MME) was administered one hour prior to the experiment.

Behavioral assessment: The acute toxicity effect of MCR and MME of Curry Leaves (*Murraya Koenigii*) leave was assessed by gross behavior model (Morpurgo, 1971). The mice were placed one by one at the centre of three concentric circles drawn on a rubber sheet with diameter of 7 cm, 14 cm and 21 cm. The animals were observed for different parameters of behavioral changes. After drug administration, the behavior modifications were observed every hour till 5 h and then at 24 h, 48 h and 72 h. The mortality was observed for 10 days after treatment. The observed result was recorded as the score of 0-3 point scale relative to the average intensity of the phenomena observed. Various parameters of gross behavior studied.

Determination of LD50: The experimental observations of acute toxicity study showed mortality with methanol extract of Curry Leaves (*Murraya koenigii*) leave (MME). Therefore, MME was evaluated for determining LD value. The doses from 2000 to 9000 mg 50 -1 kg were taken for determining LD. Each group consisted of six mice. Mortality 50 was observed within each group for 10 days after drug administration.

III. RESULTS AND DISCUSSION

The methanol extract exhibited pronounced effect on gross behavior of mice as compared to the crude powder. The crude powder as well as methanol extract showed dose dependent effect on gross behavior with the increasing dose levels i.e. 390, 780, 1560 and 3120 mg kg showing strong CNS depression and weak CNS stimulation. Mild to moderate hypo activity or reduced locomotion was noted at all dose levels for crude powder (MCR) of Curry Leaves (*Murraya Koenigii*) leave. MCR showed no effect or mild effect at lower doses while moderate effect at the highest dose level -1 (3120 mg kg) for passivity and relaxation. Mild effect for irritability was observed at 2 h for 3120 mg kg. Mild effect of stereotypy was observed at 1 h, 24 h and 48 h -1 -1 at 390 mg kg and 780 mg kg dose level while analgesic effect was observed at 1-1 h at 780 and 3120 mg kg dose level. There was no mortality observed at any dose levels for crude powder (MCR).The methanol extract (MME) of Curry Leaves (*Murraya Koenigii*) leave showed marked -1 effect for hypoactivity at the highest dose level (3120 mg kg) while moderate -1 effect at 390 and 780 mg kg dose levels. The hypoactive effect increased with the increasing time period. Moderate effect for passivity and relaxation was observed -1 at the highest dose level (3120 mg kg) while there was either no effect or very mild effect at other dose levels. MME showed weak CNS stimulation. Irritability was not observed. Mild effect for stereotypy was observed at all dose levels -1 except the highest dose level (3120 mg kg). Mild effect of analgesia was -1 -1 observed at 1 h for 390 mg kg dose level while at 1 h and 2 h for 3120 mg kg dose -1 level. Mortality was observed at the highest dose level i.e. 3120 mg kg with MME. Animal death was preceded by symptoms, such as hypo activity and lethargy. The -1 further evaluation of LD at the dose levels 2000-9000 mg Kg revealed that 50 methanol extract (MME) was devoid of acute toxicity at the studied dose level.

Effect of crude powder of Curry Leaves (*Murraya Koenigii*) leave on gross behavior of mice MCR:
Crude powder; -: No effect; 1: Mild effect; 2: Moderate effect; 3: Marked effect. 1h 2h 3h 4h 5h 24h 48h 1h 2h 3h 4h 5h 24h 48h Control - 1 - 1 1 1 - 1 1 - - - - - 1 - - - - - MCR-390 - 1 2 2 2 2 2 1 - - - 1 - 1 - - - - 1 - 1 - MCR-780 - 1 - 1 1 1 1 - 1 1 - 1 - - - - 1 - 1 - - - MCR-1560 - 1 1 2 2 2 1 2 - 1 1 1 1 - 1 - 1 - 1 - 1 1 MCR-3120 - 2 1 2 1 1 - 1 2 2 2 2 1 - 1 1 1 2 2 1 - 1 Treatment mg kg-1 Parameters of Gross Behaviour
CNS Depression Hypoactivity Passivity Relaxation Mortality 1h 2h 3h 4h 5h 24h 48h 1h 2h 3h 4h 5h 24h 48h
1h 2h 3h 4h 5h 24h 48h MCR-390 - - - - - 1 - - - - 1 1 - - - - - MCR-780 - - - - - 1 - 1 - - - - -
MCR-1560 - - - - - MCR-3120 - 1 - - - - - 1 - - - - - Treatment mg kg-1 CNS
Stimulation Irritability Stereotypy Analgesia

Effect of methanol extract of Curry Leaves (*Murraya Koenigii*) leave on gross behavior of mice MME:
Methanol extract; -: No effect; 1: Mild effect; 2: Moderate effect; 3: Marked effect. 1h 2h 3h 4h 5h 24h 48h 1h 2h 3h 4h 5h 24h 48h Control - 1 - 1 1 1 - 1 1 - - - - - 1 - - - - - MME-390 - 1 2 2 2 3 2 2 - 1 - - 1 - - - - - 1 - - MME-780 - - 1 2 1 2 2 1 - - - - 1 - - - - - MME-1560 - 1 - 1 2 1 1 2 - - - 1 1 - 1 - - -
- 1 - - MME-3120 2 3 3 3 3 3 - - - 2 2 2 2 - - 2 1 2 1 2

Treatment mg kg-1 Parameters of Gross Behaviour Mortality CNS Depression Hypoactivity Passivity
Relaxation 1h 2h 3h 4h 5h 24h 48h 1h 2h 3h 4h 5h 24h 48h 1h 2h 3h 4h 5h 24h 48h Control - - - - - 1 - - - - -
- 1 - - - - - MME-390 - - - - - 1 - - - - - MME-780 - - - - - 1 1 - 1 - - - - - MME-1560 - -
- - - - - 1 1 - - - - - MME-3120 - - - - - 1 1 - - - - - Treatment mg kg-1
CNS Stimulation Irritability Stereotypy Analgesia.

IV. CONCLUSION

The acute toxicity studies of crude powder (MCR) and methanol extract (MME) of Curry Leaves (*Murraya koenigii*) leave showed that they did not possess any toxic effect at the studied dose levels and are safe till the dose level of 9000 mg kg .

V. ACKNOWLEDGEMENT

The authors are highly thankful to the management of Dehradun Institute of Technology, Dehradun, UK, India and Management of Samarth Analytical Laboratory, Nasik (MH), India for providing necessary facilities.

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