

Evaluation of acute toxicity of an aqueous extract of irradiated *Labisia pumila* on zebrafish embryo (*Danio Rerio*)

ABSTRACT

This research aimed to compare the toxicity effect of non-irradiated and irradiated *Labisia pumila* at a different dosage of 3, 6, 9 and 12 kilogray (kGy). Different irradiated dosages of *L.pumila* were prepared using Cobalt-60 gamma irradiation and the acute toxicity were assessed through zebrafish (*Danio rerio*) embryo. The survival rate, hatching rate, heartbeat rate and scoliosis were observed. Data were analyzed using SPSS 25.0 windows. The lethal dose (LC50) value was calculated. The LC50 value of non- irradiated extract *L. pumila* is 125 µg/ml compared to irradiated extract is 62.5 µg/ml respectively. Hatchability of zebrafish of *L.pumila* extract reduce in the higher concentration for non-irradiated sample at 250 µg/ml and for irradiated sample at 125 µg/ml. Presence of scoliosis not observed in all concentration for irradiated and non-irradiated sample. The heartbeat of zebrafish embryo treated with irradiated *L. pumila* extract (0–62.5 µg/ml) was within the normal range (120–180 bpm for all doses), but at higher concentrations (125 µg/ml) the heartbeat differs from normal ranges for all the doses. From this time forward, irradiated and non-irradiated of this plant was safe to be consumed due to its pharmaceutical effect but it still exhibited mild toxicity effect on zebrafish embryo. The diverse irradiated doses show a change of toxicity level of this plant which higher doses show mild toxicity to the zebrafish embryo compared to low doses exposure.

Keyword: *Labisia pumila*; Irradiation; Zebrafish; Heartbeat; Hatching