

## **Acute toxicity test of aqueous extract of white hoary pea, *Tephrosia candida* (Papilionoideae) on Nile tilapia, *Oreochromis niloticus* (Cichlidae) fingerlings**

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*Tephrosia candida* was introduced to Sri Lanka as a legume live mulch for weed control and to protect soil surface. It is a source of flavonoids and rotenoids including rotenone, tephrosin, and deguelin. Fishermen add large amount of grounded plant matter to the water that kills almost all the fish in the stream within a short period of time. This method of unregulated fishing may have a long term negative effect on fish diversity and abundance in the country.

A 96hr static renewal toxicity bioassay was carried out in the laboratory to determine the median lethal concentration (LC<sub>50</sub>) of aqueous extract of *T. candida* leaves on Nile Tilapia (*Oreochromis niloticus*) fingerlings. Experimental fish were exposed to test water in 20L glass aquaria with concentrations of aqueous extract of 5, 7.5, 10, 15 and 20 mgL<sup>-1</sup>. All five treatments and the control aquaria were triplicated. Temperature, pH, total dissolved solids, conductivity and dissolved oxygen (DO) in water in all the aquaria were monitored using multi parameter water quality checker before and after the addition of toxicant, 24, 72 and 96hr of fish stocking thereafter. The median lethal concentration (LC<sub>50</sub>) values and its corresponding 95% confidence limits were calculated by Probit analysis.

The LC<sub>50</sub> values at various exposure periods were 10.83mgL<sup>-1</sup> for 24h; 8.61mgL<sup>-1</sup> for 48h; 7.26mgL<sup>-1</sup> for 72h and 6.43mgL<sup>-1</sup> for 96h. Symptoms of toxicity observed included, initial inactivation, agitated swimming, turning movement, air gulping, increased opercular beat, then erratic swimming, loss of reflex, slow opercular movement, setting at the bottom motionless and knockdown before death. The gills of the dead fishes were damaged, swollen and external bleedings were observed. Lower concentrations of the extracts had sub lethal effects which manifested as zigzag movement, air gulping, increased opercular movement and some fish gathered near the air stones. It could be concluded that the application of *T. candida* extract causes lethal toxic effects on fish at even very low concentrations.

Keywords: *Tephrosia*, *Oreochromis*, LC50, plant toxin