

Evaluation of the Biosafety of Selected Botanical Pesticide Plants Used by Subsistence Farmers Around the Lake Victoria Basin

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A survey carried out around the Lake Victoria region came up with evidence that people around this region use plant extracts/parts/powders to protect crops against storage insect pests. The most widely used plants were identified and four plants namely, *Ocimum gratissimum*, *Tithonia diversifolia*, *Eucalyptus globules* and *Cuppressus lusitanica* were selected for biosafety assessments. Acute toxicity studies established the LD₅₀ values of the essential oils from *Ocimum gratissimum*, *Eucalyptus globules* and *Cuppressus lusitanica* as 4,677 mg/kg, 2,290 mg/kg, and 2,951.2 mg/kg respectively. Ethanol extracts also showed LD₅₀ values of 13,182 mg/kg, 12,589.3 mg/kg, and 14,791 mg/kg respectively. For the aqueous extracts, the LD₅₀ values of *Tithonia diversifolia* was found to be 11,885 mg/kg. For *Eucalyptus globules* and *Cuppressus lusitanica*, their aqueous LD₅₀ values were beyond 15,000 mg/kg.

The oral acute toxicity tests showed weak toxicities for all the plant extracts investigated in the study. Essential oils however showed lower LD₅₀ values as compared to ethanol and aqueous extracts of the same plants. It is however important to note that substances may be less toxic when ingested and extremely toxic when inhaled (Proctor et al., 1978). It is therefore recommended that other toxicity studies be carried out using other routes for example the inhalation and skin absorption (dermal toxicity) since they are relevant occupational exposure routes. There is also need to carry out chronic toxicity studies to assess the effects of these extracts over a long period of exposure.