

**OVICIDAL AND OVIPOSITION DETERRENCE PROPERTIES OF  
TABERNAEMONTANA DIVARICATA (APOCYNACEAE) AGAINST AEDES  
ALBOPICTUS AND CULEX QUINQUEFASCIATUS IN SRI LANKA**

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The global incidence of mosquito-borne infectious diseases has increased dramatically in recent decades due to the limitations of current vector mosquito control approaches. Plant-based insecticides are increasingly demanded to control vector mosquitoes, mainly because of their eco-friendly nature. In this study, the ovicidal and oviposition deterrent properties of *Tabernaemontana divaricata* (Crape Jasmine) leaf extracts were evaluated against two medically important vector mosquitoes: *Aedes albopictus* (dengue vector) and *Culex quinquefasciatus* (lymphatic filariasis vector). Bioactive components of the plant leaves were extracted using ethanol. Ovicidal bioassays were conducted to determine the lethal concentrations required to kill 50% and 90% (LC<sub>50</sub> and LC<sub>90</sub>) of mosquito eggs. The oviposition deterrent activity of the plant was evaluated using 1% treatment solutions prepared by directly dissolving dried leaf powder in distilled water. The number of eggs laid in treatments and controls was recorded for seven days under field conditions. LC<sub>50</sub> and LC<sub>90</sub> for *Ae. albopictus* were 626.6 ppm and 892.5 ppm, respectively. For *Cx. quinquefasciatus*, the respective values of LC<sub>50</sub> and LC<sub>90</sub> were 553.2 ppm and 621.1 ppm. A strong positive correlation between egg mortality and the concentrations of treatment (*Ae. albopictus*  $r=0.993$ ,  $p=0.001$ ; *Cx. quinquefasciatus*,  $r=0.992$ ,  $p=0.001$ ) was observed. Deterrent properties were high during the first few days of the treatment (99.8% for *Ae. albopictus* and 100% for *Cx. quinquefasciatus*). A gradual reduction of the deterrent properties of the treatment was observed after the second day for *Ae. albopictus* and the fifth day for *Cx. quinquefasciatus*. The oviposition activity index (OAI) ranged from -0.97 to -0.12 for *Ae. albopictus*, while it was between -1 and -0.53 for *Cx. quinquefasciatus*. The results show that the leaf extracts of *Ta. divaricata* has great potential to be used as eco-friendly ovicides and oviposition deterrents against *Ae. albopictus* and *Cx. quinquefasciatus* mosquitoes.

**Keywords:** Bioactive compounds, Plant-based insecticides, Plant secondary metabolites, Vector mosquitoes