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Larvicidal Activities of *Capparis divaricata* against Two Mosquito Species, *Aedes aegypti* and *Anopheles stephensi*

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Abstract

The insect-borne disease continues to be a major source of sickness and death worldwide. Resistance to chemical pesticides and their risks have been regarded as a setback in mosquito vector control. Due to the presence of various phyto compounds in plant species, botanicals can manage and prevent vector (insect) transmitted illness by killing insect eggs and larvae. An experiment was carried out to determine the possible toxicity of *Capparis divaricata* (Capparidaceae) extract against *Anopheles stephensi* and *Aedes aegypti* larvae, as a result of treatment with *C. divaricata* extract. The larvicidal activity of *C. divaricata* extract against the larvae of *A. stephensi* and *A. aegypti* was determined according to the World Health Organization (WHO). Larval mortality was recorded after 12 and 24 hours of exposure. The inhibition effect of *C. divaricata* was assessed by determining the mortality of the treated. The crude extract of *C. divaricata* exerted 91% of mortality, LC_{50} 81.2 and LC_{50} 110.4at 250 μ l/l and *A. aegypti* after 24h at 250 μ l/l, LC_{50} 72.3 and LC_{50} 144.7. The study provided information on various effects of *C. divaricata* extract against *A. stephensi* and *A. aegypti*.

Key words: *Capparis divaricata*, Larvicidal activity, Insecticide, *A. stephensi*, *A. aegypti*

Medicinal plants are yielding herbal products that are becoming more popular. Herbal products have long been prized for their aromatic, medicinal, and flavouring properties. The significant side effects of synthetic therapeutic things made them unacceptable. Vector management is becoming more difficult due to the emergence of resistance to synthetic pesticides and their side effects. So, insecticides derived from plants could replace synthetic chemical approaches that are no longer effective. It is common in India and can be found in many different regions. It has therapeutic properties and can treat various ailments [1]. *Anopheles*, *Culex* and *Aedes* mosquito species are carriers of diseases including dengue fever, yellow fever, and chikungunya. Synthetic pyrethroids

trixis, *Balanites aegyptiaca* and *Phombago seplana* were tested against *Aedes aegypti* and *Aedes aegypti* larvae [2].

According to the literature, phytochemicals have been shown to have various pharmacological effects on different illness conditions. These compounds have shown diverse therapeutic properties, including antioxidant, anti-inflammatory, antimicrobial, anticancer, cardioprotective, neuroprotective, and immunomodulatory effects, among others. To name a few of the side effects that can be caused by toxins, inflammation, arthritis, diabetes, cardiovascular illnesses, renal problems, hepatic toxicity, microbial infections, and cancer are just a few examples. Several studies have demonstrated that the sterols stigmasterol and beta-sitosterol have antibacterial

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Enumeration of Angiosperms Diversity in Madaiyakaruppar Sacred grove of Tamil Nadu, India

*Sacred groves are the natural forest types and hotspots of local biodiversity. In the present exploration, authors have provided the checklist of angiosperms of the Madaiyakaruppar sacred grove of Pudukkottai district, Tamil Nadu. In this study, enumeration of total of 232 species under 194 genera with 56 families has been provided. Major contribution of the plants species is represented by the following families, Fabaceae (32), Poaceae (19), Acanthaceae (16), Malvaceae (15), Apocynaceae (12), Asteraceae (10), and Rubiaceae (10). *Barleria cuspidata* and *Justicia glauca* are endemic plants also few threatened plants were recorded from the sacred grove.*

Key words: Fabaceae, APG, Flora, Endemic plants, *Terminalia bellirica*

Introduction

Sacred groves are community forest areas protected by village residents as part of their ethnic and religious practices, and they are rich in biodiversity and play an important role in biodiversity conservation (Khumbongmayum et al., 2006). It acts as biodiversity hotspots, preserving unique vegetation and providing a habitat for birds and mammals (Islam et al., 1998). Additionally, it provides ecosystem services such as reducing soil erosion, maintaining soil fertility, reducing habitat degradation, and conserving pollinators and predators (Khan et al., 2008). Many ecologists and taxonomists have long recognised the importance of sacred groves in biodiversity conservation (Gadgil and Vartak, 1976; Handasan and Rao, 1985; Khan et al., 1997; Ramanujam, 2000; Ramanujam and Kadamban, 2001; Ramanujam and Cyril, 2003; Reddy and Parthasarathy, 2003; Venkateswaran and Parthasarathy, 2003; Britto et al., 2004; Venkateswaran and Parthasarathy, 2005; Khan et al., 2006; Parthasarathy et al., 2008; Udayakumar and Parthasarathy, 2010). The majority of plant species found in sacred groves have medicinal benefits (Asokan et al., 2015). Sacred groves are found in India, Africa, Japan, Thailand, China, Indonesia, England, Finland, Germany, Turkey, and Italy, according to the literature (Khan et al., 2008; Sharma and Kumar, 2021). Recently, Sharma and Kumar (2021) have been reported 15,716 sacred groves in India. The recording of sacred groves is continuously ongoing. In addition, Tamil Nadu has reported 1261 sacred groves (Amirthalingam, 2016). The floristic analysis of sacred groves in various locations of Tamil Nadu has been investigated by a number of researchers (Ramanujam and Cyril, 2003; Britto et al., 2001a, 2001b; Udayakumar and Parthasarathy, 2010; Sukumaran and Raj, 2010; Krmalaivelli, 2011; Gunasekaran et al., 2012; Thanasekaran et al., 2017;

Nine endemic plants and few threatened plants were recorded from Madaiyakaruppar Sacred Grove of Tamil Nadu, which is found to be in threats due to anthropogenic disturbance and need to be conserved immediately.

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