

# **Phytochemical screening and insecticidal activity of different extracts of *Acacia modesta* Wall. on adult *Culex pipiens* mosquito**

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## **Abstract**

**Background:** Insect-transmitted diseases remain a major source of illness and death worldwide. Mosquitoes alone transmit diseases in more than 700 million people annually. The aim of the work: is to perform phytochemical screening tests and to investigate the insecticidal effects of different extracts of the aerial parts of *Acacia modesta* (*A. modesta*) Wall. on adult *Culex pipiens* (*Cx. pipiens*) mosquito.

**Materials and methods:** Different *A. modesta* Wall. extracts were bioassayed against adult *Cx. pipiens* mosquito to estimate their insecticidal effects. Three different extracts of *A. modesta* Wall. aerial parts were prepared (distilled water, ethanol and acetone extracts). Different concentration for each prepared extract were tested for their insecticidal activity as well as different duration of exposure e.g. one hour, 24 hours, 48 hours and 72 hours were also performed. **Results:** The efficacy of these extracts varies according to type of solvent used, concentration of extract and duration of exposure. With continuous exposure for 24 hrs; efficacy of *A. modesta* Wall. extract was elevated from 62–91% in the same manner. Expanding the exposure for 48 hrs; show continuous elevation up to 90–100 %. Meanwhile, the highest concentration of the tested plant extracted in acetone is one third (100 mg/ml) compared to other solvents (300 mg/ml), results showed that using acetone as a solvent is better than either distilled water or ethanol for its insecticidal activity. **Conclusion:** It was evident from the results that the plant is a potential source of botanical insecticides against adult *Cx. pipiens* mosquitoes and their toxic effects are time and concentration dependent. Moreover, phytochemical screening for the aerial parts of *A. modesta* Wall. resulted in the identification of carbohydrates and/or glycosides, tannins, flavonoids , unsaturated sterols and/or triterpens as well as saponins.

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