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Larvicidal activity of crude extracts of *Curcuma longa* L against *Aedes aegypti* L

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Dengue fever is a severe disease in Sri Lanka transmitted by *Aedes aegypti*. Control of *Ae. aegypti* is carried out by the elimination of reproductive water source by applying chemical insecticides. *Curcuma longa* (Turmeric) is found to possess antibacterial and insecticidal activities. In the present study an approach was made to evaluate the mortality of third instar larvae of *Ae. aegyti* by crude extracts of rhizome of *C. longa*. Dried rhizome powder was sequentially extracted from non polar to polar solvents such as hexane, dichloromethane (DCM), ethyl acetate (EA), ethanol, methanol and water. Each solvent was evaporated under reduced pressure using rotary evaporator at 40ºC. Stock solution of test sample was dissolved in mixture of dimethyl sulfoxide (DMSO) and acetone (1:1 v/v). A series of concentrations of 50 to 250 ppm was prepared by diluting the stock solution with water. 200 ml of each concentration was taken into a plastic cup. Twenty larvae were exposed to it and triplicate test was done for each solvent extract. Mixture of acetone and DMSO was used as control. All bioassays were done under ambient temperature (29±2^{0}C) and mortality was recorded after 24 hours. Data of mortality of larvae were subjected to log probit regression analysis to determine 50% lethal dose (LD_{50}) at 95% confidence limit. Data revealed that ethyl acetate extract of *C. longa* exhibited higher toxic effect against third instar larvae of *Ae.aegypti* than other solvent extracts and LD_{50} value was 85.902 ppm (fiducial limits 74.303-95.548 and x^2=8.6047). Further, LD_{50} value of DCM, hexane and ethanol extracts were 121.229 ppm (108.171-132.686), 176.047 ppm (165.098-187.999) and 197.414 ppm (187.909-208.328) respectively. Methanol and aqueous extracts exhibited lower effects against third instar larvae of *Ae. aegypti*. Control experiment indicated that solvent mixture did not cause mortality. This study therefore suggests that among the different solvent extracts of *C. longa* ethyl acetate extract was therefore found to be effective against third instar larvae of *Ae. Aegypti*.

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