



Evaluation of the Larvicidal Effect of Coelomic Fluid of *Eudrilus eugeniae* on *Aedes* Larvae

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Abstract : *The present study was carried out to evaluate the larvicidal potentiality of the coelomic fluid of Eudrilus eugeniae on the larvae of Aedes mosquito. Mortality was checked at different concentrations of coelomic fluid ie. 10%, 20%, 30% and 40%. Protein and carbohydrate were quantified in the larvae subjected to CF-treatment under varying concentrations. SDS-PAGE revealed new protein bands in the CF-treated larvae which suggests the probable expression of stress proteins. Coelomic fluid assessment by FT-IR Spectroscopy revealed the presence of Arginine-containing protein in the CF responsible for earthworm's immunity and membrane-penetrating property. The findings of the study clearly exhibited the potent larvicidal property of CF, which is evident from its ability to kill the larvae of the Aedes mosquito vector species.*

Keywords : *Coelomic fluid, Aedes, larvicidal potential, Eudrilus eugeniae, SDS-PAGE, FT-IR Spectroscopy, stress proteins, Arginine.*

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Introduction :

Dengue has become a global problem since the second world war and is common in more than 110 countries (Bhatt et al., 2013). Each year between 50 to 530 million people are infected by the disease and approximately 10,000 to 20,000 deaths are caused (Carabali et al., 2015). The rate of dengue has increased 30-fold between 1960 and 2010 (WHO, 2009), due to the combined effects of urbanisation, population growth, increased international travel and global warming (Whitehorn and Farrar, 2010). It is caused by the Dengue-virus having five different subtypes called serotypes (Normile, 2013) primarily transmitted by *Aedes* mosquitoes. Due to the presence of many beneficial characteristics in them, a number of plant products have been evaluated against vector mosquitoes to explore the possibility of their use in the integrated mosquito control programme.

It has been found that the coelomic fluid of earthworms has 40 different proteins and exhibits complex biological effects, such as, agglutinating (Mohrig et al, 1989), cytotoxic (Kauschke and Mohrig, 1987), proteolytic (Leipner, 1991 and