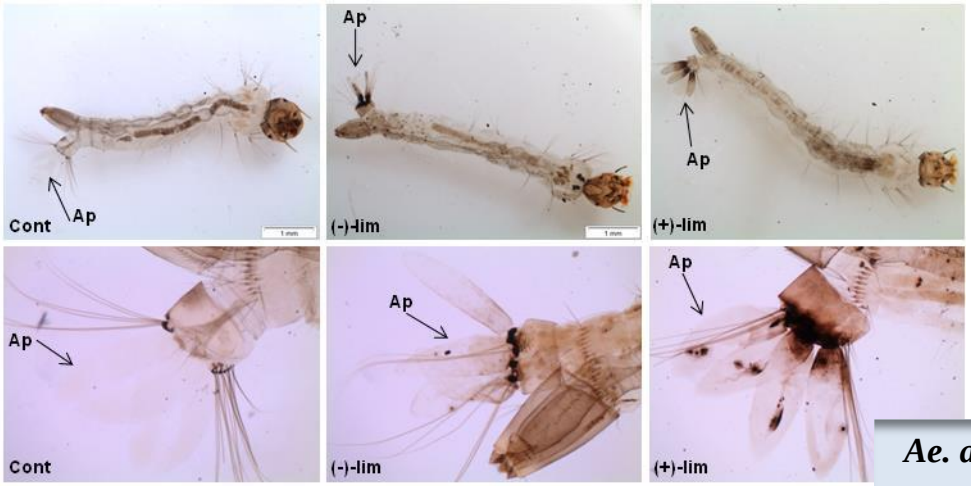
Ecofriendly Biolarvicide for mosquito control



***Ae. aegypti* larvae morphological alteration**

Larvicidal Activity Against Aedes aegypti of Foeniculum vulgare Essential Oils from Portugal and Cape Verde, D.K.Rocha, O.Matos , M.T.Novo, A.C.Figueiredo, M.Delgado, C.Moiteiro; Nat. Prod. Commun., 2015, 10(4), 677-682.

Dengue has recurrent epidemics in Latin America and occurred recently in Cape Verde and Madeira Island. The lack of anti-viral treatment or vaccine makes the control of mosquito vectors a high option to prevent virus transmission. The use of plants for insect control has increased worldwide, with particular emphasis on search of essential oils (EOs) obtained by hydrodistillation.

The present study evaluated the potential use of *Foeniculum vulgare* (fennel) EO in the control of the dengue vector *Aedes aegypti.*

EOs isolated from fennel aerial parts collected in Cape Verde and from a commercial fennel EO of Portugal were analyzed by NMR, GC and GC-MS. *trans*-Anethole (32 and 30%, respectively), limonene (28 and 18%, respectively) and fenchone (10% in both cases) were the main compounds identified in the EOs isolated from fennel from Cape Verde and Portugal, respectively.

The larvicidal activity of the EOs and its major constituents were evaluated, using WHO procedures, against third instar larvae of *Ae. aegypti* for 24 h. Pure compounds, such as limonene isomers, were also assayed. The lethal concentrations LC_{50}, LC_{90} and LC_{99} were determined by probit analysis using mortality rates of bioassays. A 99% mortality of *Ae. aegypti* larvae was estimated at 37.1 and 52.4 µL L^{-1} of fennel EOs from Cape Verde and Portugal, respectively. Bioassays showed that fennel EOs from both countries displayed strong larvicidal effect against *Ae. aegypti*, the Cape Verde EO being as active as one of its major constituents, (-)-limonene.

These results suggest the potential application of fennel EO as a possible natural larvicidal for the control of the major dengue mosquito vector.