E2-05: Mosquito larvicidal compounds from *Eupatorium riparium*

W D Anuruddha Bandara, W Subodhi Karunaratne, Vijaya Kumar
(*Dept. Chemistry, Univ. of Peradeniya*)

In our continuing search for insecticidal compounds, extracts from Sri Lankan plants have been examined for activity against *Aedes egyptii* larvae. In the present work, the compounds responsible for the mosquito larvicidal properties of *Eupatorium riparium* (Compositae) were studied.

Although there have been no reports on biological activity, phytochemical studies have shown the presence of chromenes and sterols in the plant.

The dichloromethane extract of the above ground parts of *Eupatorium riparium* in 0.5 ml of acetone was introdeced into beakers each containing 10 *Aedes egyptii* larvae in 10 ml water containing 45 μl of polyethyleneglycol (PEG). The concentration of extract in the beaker decreased from 400 to 50 ppm with 4 replicates at each concentration. Acetone and PEG at the same concentration was used as control. Mortality was observed after 24h.

The extract was fractionated by column chromatography and the fractions were screened for activity at concentrations of 200 to 25 ppm. Active fractions were subjected to repeated column chromatographic separation and finally reverse phase chromatography with fractions being screened for activity at concentrations of 100 to 6 ppm until the active compounds were isolated.

The active compounds were characterised using IR, NMR and mass spectroscopy.

Two compounds in the dichloromethane extract were found to be active. These were a chromene, methylripariochromene and a triterpene, taraxasterol which respectively eluted with water:methanol (7:18) and water:methanol (1:4) in reverse phase chromatography using silanised silica gel 60. The chromene showed 60% mortality (Control 7.5%) at 50 ppm and taraxasterol 33% (Control 6.6%) mortality at 33 ppm. The 2 compounds were identified using IR, NMR and mass spectroscopy. The chromene has been previously isolated from *E.riparium*.

The dichloromethane extract of *Eupatorium riparium* is shown to have mosquito larvicidal activity against *Aedes egyptii* larvae and the activity is shown to be due mainly to methyripariochromene A and taraxasterol.