Many workers haye studied only the larvicidal action of terrestrial plant extracts against the larvae of *A. stephensi*[1-3]. Among the samples studied the acetone extract of *Ipomea carnea*[2] and the petroleum ether extract of the *Calotropsis*[1] species were found effective with LC_{50} of 180 and 21.7 ppm respectively. As effective concentrations less than 50 ppm are known to be economical for field use in mosquito larval control[1], the stilt root extract of *R. apiculata* which is effective at a lowest concentration of 17 ppm, can be attempted for mosquito control practices. The isolation, purification and structural elucidation of the larvicidal principles are in progress.

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A LARGE SCALE TRIAL WITH PENFLURON TO SUPPRESS THE POPULATION OF *ANOPHELES STEPHENSI* (LISTON)

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PENFLURON and other chitin inhibitor compounds are superior to other insecticides[1-4]. The residual toxicity of these compounds to other non-target animals is negligible[5]. Laboratory studies have shown that chitin inhibitors are particularly effective in suppressing species of mosquitoes[1-4]. However, these findings have not yet been tested on a large scale, in order to recommend these compounds for field applications for suppressing mosquito vector populations. The present paper deals with the field evaluation of Penfluron, a potent chitin inhibitor, for suppression of larval and pupal populations of the malaria vector, *Anopheles stephensi*.

Water collected in cement receptacles of 500 litres capacity containing *A. stephensi* population was treated with different concentrations of Penfluron. The volume of water was estimated by measuring the surface area and depth of water. The density of larvae and pupae was estimated by the dipper sampling method, using a dipper. An average of 5 dips was considered. The density was estimated before spraying and after 24 h of application in order to determine the effect of the compound.

For the application, a 1% (w/v) stock solution was prepared by dissolving the compound in acetone. Tween-80 was used as an emulsifier. Further, different ppm concentrations were prepared by diluting the stock solution with water. The required volume of the test formulation was sprayed on the surface of water using a hand sprayer at concentrations ranging from 0.1 ppm to 0.001 ppm (table 1).

Table 1 shows that Penfluron is highly effective in suppressing the population of *A. stephensi*. Of the three doses evaluated (0.1, 0.01 and 0.001 ppm) 0.1 ppm is most effective causing a fall of 84% in adult emergence upon treating fourth instar larvae and a fall of 100% upon treating second instar larvae within 6 and 10 days after treatment respectively.

At all the doses tested, most of the deaths occurred during moulting as reported earlier[1].

The compound is not effective against pupae of *A. stephensi* at the concentrations of 0.001, 0.01 and 0.1 ppm, as also reported with Diflubenzuron and Furyltriazine.

The second instar larvae are most susceptible and a complete suppression of population is observed upon treatment at this stage with 0.1 ppm of the inhibitor. It is thus recommended that the 2nd instar is the most appropriate stage for treatments, ensuring no adult emergence.

Based on these findings, a dose of 0.1 ppm of Penfluron is recommended for field applications to suppress effectively the breeding of *A. stephensi*. Penfluron thus warrants inclusion in field application programmes for the control of the malaria vector, *A. stephensi*.

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Table 1 *Field trial of Penfluron against the larvae of Anopheles stephensi*

	0·1 ppm				0·01 ppm				0·001 ppm			
	Larval instars				Larval instars				Larval instars			
	II	III	IV	Pupae	II	III	IV	Pupae	II	III	IV	Pupae
Pre-spray density	100	138	235	98	205	198	235	122	173	302	238	105
Density on												
Day 1	88	122	203	95	192	156	198	120	161	278	203	105
Day 2	82	105	168	95	156	122	133	118	138	205	183	105
Day 3	76	86	123	92 (All adults emerged)	103	106	102	118 (All adults emerged)	120	193	162	105 (All adults emerged)
Day 4	58 (29 D 29 M)	63 (12 D 51 M)	105		92 (29 D 63 M)	88 (18 D 70 M)	98 (16 D 82 M)		98 (25 D 73 M)	180 (18 D 162 M)	125 (3 D 122 M)	
Day 5	29	51	99 (36 D 63 M)		63	70	82		73	162	122	
Day 6	17	42	63		48	53	61		56	150	112	
Day 7	0	30	41		30	47	50		42	135	102 (3 D 99 M)	
Day 8		22 (12 D 10 M)	35 (35 M)		28 (17 D 11 M)	35 (6 D 29 M)	50 (50 M)		40	120 (1 D 119 M)	99	
Day 9	–	10	35		11	29	50		35 (4 D 31 M)	119	99	
Day 10	–	10	35		11	29	50		31	111	99	
Suppression (%)	100	93	84	7	90	85	79	3	82	63	58	Nil

D, Died; M, Moulted to next higher instar.

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STUDIES ON NON-SPECIFIC ESTERASES IN THE OVARY OF INDIAN HOUSE SPARROW, *PASSER DOMESTICUS*

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HISTOCHEMICAL localization of non-specific esterases in corpora lutea and its role in the catabolism of steroid precursors are well studied in mammalian ovaries[1,2], uterus[3] and also in non-gonadal sites such as nasofrontal glands of *Hipposideros speoris*[4] and the vaginal gland cells of *Cynopterus sphinx sphinx*[5]. However, there is no study on the lysosomal and nonlysosomal esterases in the ovary of sparrows. Therefore the present note