Table 1 *Effect of compound A 13–29054 on the reproductive potential of A. stephensi*

Treated Sex	Concentration in ppm*	Total No. of eggs laid	Eggs laid per female	Per cent reduction in egg/female	Total No. of larvae hatched	Per cent hatch	Per cent sterility
Both sexes treated	0.001	2385	95.4[a]	13.20	50	52.41	47.50
	0.0005	2500	100.0[a]	8.00	73	73.00	27.00
	0.0001	2658	106.32[b]	1.58	81	76.18	23.82
	Control	2700	108.0	–	100	92.59	7.41
Untreated females × treated males	0.001	2200	88.0[a]	28.63	55	62.50	37.5
	0.0005	2483	99.32[a]	15.97	78	78.53	21.47
	0.0001	2725	109.0[b]	3.85	91	83.48	16.52
	Control	2830	113.2	–	107.2	94.69	5.31
Treated females × untreated males	0.001	2075	83.0[a]	26.02	48	57.83	42.17
	0.0005	2300	92.0[a]	13.69	70	76.08	23.92
	0.0001	2450	98.5[a]	6.19	80	81.21	18.79
	Control	2615	104.6	–	98	93.69	6.31

* 25 pairs were crossed at each dose level
[a] Values are significantly different from control ($P < 0.01$)
[b] No significant difference between treated and control values ($P > 0.1$)

the differential sexual sensitivity of the compound.

Considerable fall in the egg hatching suggests that the compound significantly reduces the viability also of the eggs. The induced maximum sterility of 47.6% is recorded when the adults emerged from the larvae treated at 0.001 ppm were crossed (table 1).

It has been reported by several workers that diflubenzuron inhibits the incorporation of glucose in the biosynthesis of chitin in immature stages[4–6]. This explains the failure of the mosquito larva to hatch out of the egg. How exactly the treated males affect the egg-hatch needs further study.

Since the data convincingly demonstrate that this compound adversely affects the fecundity and the viability of eggs and imposes sterility, it exhibits the potentiality to suppress the mosquito population.

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EFFECT OF LIGHT ON BRAIN NEUROSECRETORY CELLS OF THE HONEY BEE, *APIS CERANA INDICA* AND ITS SIGNIFICANCE IN SCREENING PIGMENT MOVEMENT OF THE COMPOUND EYE

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In insects with apposition type of compound eye, the light and dark-adaptation is associated with radial movement of screening pigments. In the dark-adapted state the sacks of the endoplasmic reticulum known as palisade surround the rhabdom. A major portion of the retinula cell, up to one-third of its width from the rhabdom, is occupied by elongate large vesicles of the

palisade. The pigment granules occur between the vesicles of the palisade as well as in the peripheral cell cytoplasm. During light-adapted condition, the palisade is reduced in extent and accessory pigment granules of the retinula cells move towards the rhabdomere[1]. Despite the fact that the studies on pigment migration in the compound eye of arthropod started long back, the mechanism which controls this is poorly understood. Recently it has been suggested that in the dragon flies, *Austrolestes annulosus* (salys) and *Ischnura heterosticta* (Burm) distal migration of the pigment granules of the compound eye is probably under the influence of neuro-secretion[2]. Against this background, the present study describes the effect of light and darkness on the neurosecretory cells of the brain of the honey bee, *Apis cerana indica*. The insects have been given light and dark treatment for periods ranging from 10 minutes to 1 hour. The neurosecretory cells have been studied by employing selective stains like paraldehyde fuchsin and chrome alum haematoxylin-phloxin[3-5]. It has been observed that in dark-adapted insects, there was large accumulation of neurosecretory material (NSM) in the form of compact neurosecretory granules, as evidenced from their positive reaction to paraldehydefuchsin stain. The granules appeared purple in colour. In contrast to this, light-adapted insects showed a significant reduction in the quantity of the neurosecretory material in the cell bodies. The cytoplasm appeared lightly stained and the shape of the cell became slightly irregular. Presumably during light adaptation, axonal transport of neurosecretory material takes place. It may be suggested that in the dark-treated insects the rate of discharge of neurosecretory material is slower than that of the light-treated ones. The neurohormones present in the neurosecretory system of insects are represented by catecholamines or biogenic amines like 5-hydroxy-tryptamine and the compounds of relatively large molecular weight such as peptides or proteins[6]. It is well established that catecholamines or biogenic amines like 5-hydroxy tryptamine are responsible for physiological phenomena which take place rapidly and their liberation is almost instantaneous. In this context it is of interest to mention that pigment migration of the compound eye is also a very rapid process. Thus, it will be interesting to study whether catecholamines or biogenic amines play any role in the radial movement of screening pigment.

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THE CYCLICITY OF CORPUS ALLATUM (CA) IN RELATION TO THE ACTIVITY OF THE MALE ACCESSORY GLANDS IN *LEPTOCORIS COIMBATORENSIS* GROSS (HEMIPTERA: COREIDAE)

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THE role of corpus allatum hormone (JH) in the stimulation of accessory glands has been reported earlier[1,2]. JH induces enhanced secretion of the accessory glands, whereas allatectomy leads to a decrease in the size of the gland and also its secretion[3,4]. The present paper deals with the effect of juvenile hormone analogue hydroprene on the cyclic activity of corpus allatum and the accessory glands of the male bug *Leptocoris coimbatorensis*.

The freshly ecdysed adult bugs were treated with varying concentrations of hydroprene, ranging from 0.001 to 0.01 μg/μl/insect. The insects were treated topically on the abdominal tergum. Parallel controls were treated with 1 μl/insect with the carrier solvent acetone. They were maintained under laboratory conditions of temperature 30 ± 1°C and RH of 65 ± 5%. The male reproductive organs and corpora allata were dissected after 3, 4 and 5 days and the accessory glands were further processed for histological studies. The size of the corpus allatum and the accessory glands was measured and the volume of the corpus allatum was calculated[5].

Histological studies showed that the accessory glands of the controls consisted of a syncytial structure