

Figures 1-5: 1,2,3 and 5 *Trypanosoma rupicoli* (sp. nov) from *Nemacheilus rupicola* (Hora), 4, R.B.C. of the host fish.

Nucleus was distinct in all the forms and mostly situated in the posterior half of the cell body. It was either rounded (figure 3) or elliptical in shape. A karyosome was distinctly present within each nucleus of all the forms (figures 1-3&5). Karyosome stained hyperbasophilic as compared to the surrounding nuclear material. Kinetoplast was situated at the posterior extremity of the cell. It was small-sized, rounded or elongated in shape and stained deep basophilic. Flagellum arises from the inner end of the kinetoplast, runs over the inner margin of the undulating membrane and frees at the anterior extremity of the cell. Undulating membrane was present in all forms and had 2-3 curves around the cell body of the parasite.

Body measurements: The new species of the trypanosome, described here, had the following body measurements, mean and range in parenthesis: length of the free flagellum 10. (7-14) μm , length of the body 23.4(9-29.7) μm total body length 33.3 (26.8-40) μm , maximum body width 2.8(2.5-3.2) μm , length of the nucleus 2.2(2-2.6) μm , width of the nucleus 1.3(1-1.7) μm , maximum width of the undulating

membrane 1.5(1-2.2) μm , distance of the nucleus from the aflagellar end 7.3(5.4-10.5) μm , length of the kinetoplast 0.86(0.6-1) μm , width of the kinetoplast 0.4(0.25-0.5) μm , length of the karyosome 0.7(0.5-1.1) μm and the nuclear index was found to be 0.57(0.5-0.7).

Polymorphic forms were not present in the blood smears, confirming the monomorphic nature of the parasite. Intensity of parasitemia was very low.

The *Trypanosoma rupicoli* (sp. nov) described here appears distinct in various cytomorphological characters. The new species show major difference in the typical crescentic curvature of the body, light staining behaviour of the cytosome, thinly scattered cytoplasmic granules, typical beak-like extremity of the posterior end, presence of a distinct karyosome within the nucleus and 2-3 folds of the undulating membrane. Besides, the body measurements of the new species, described here, are also quite different from the related species described so far.

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ON THE ACTION OF A CARBAMATE ANALOGUE AS A JUVENILE HORMONE MIMIC

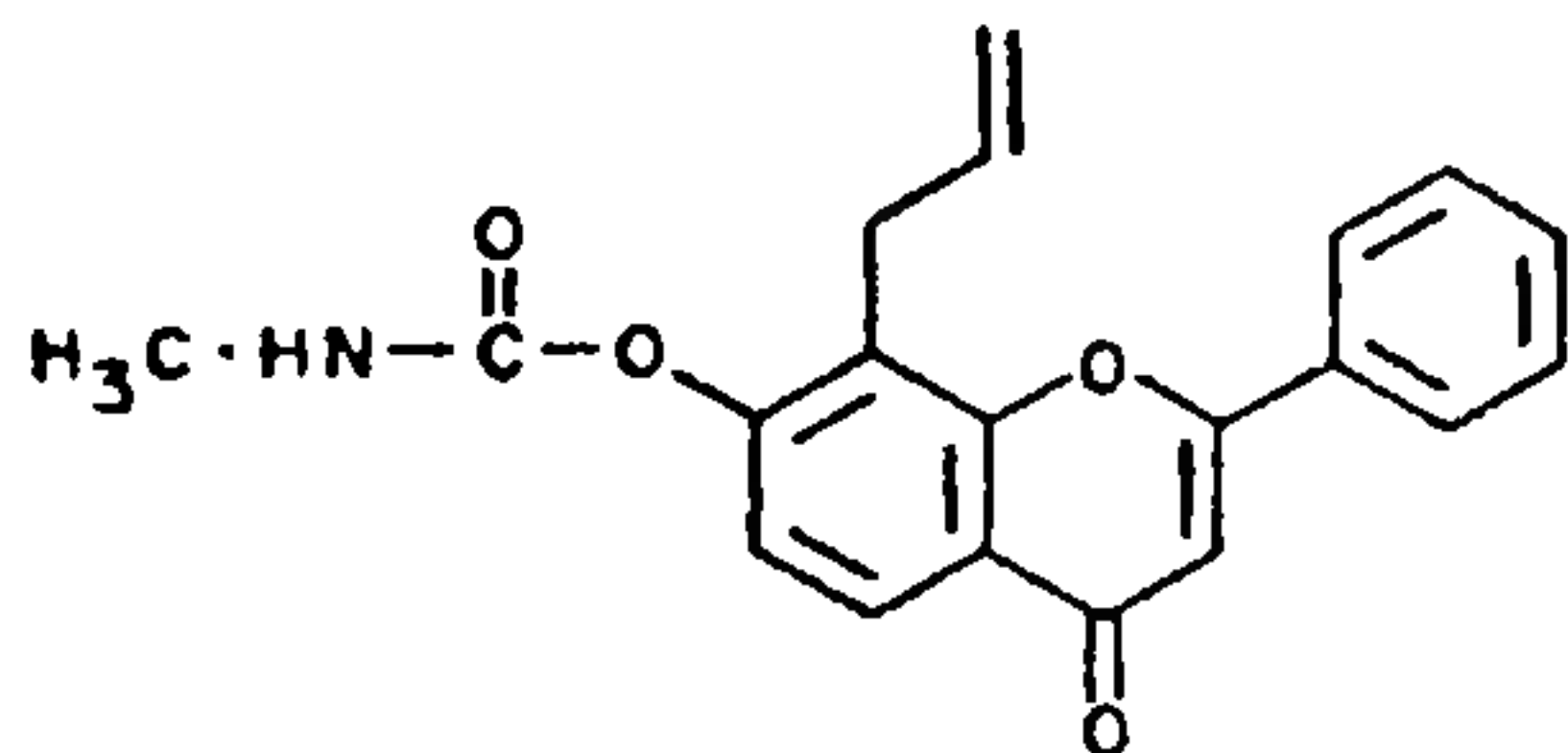
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CARBARYL (Sevin) is known to be an important insecticide of the carbamate group. 8-allyl-7-flavonyl-

N-methyl carbamate, a carbamate analogue synthesized in the Department of Chemistry, Osmania University (personal communication), was tested on the red cotton bug, *Dysdercus similis* (F) for its hormonal activities and the results are reported here.



8-allyl-7-flavonyl-N-methyl carbamate

The bug was reared in the laboratory under controlled conditions of $27^{\circ} \pm 1^{\circ} \text{C}$, $70 \pm 5\%$ RH and 12 hr photoperiod. Freshly moulted fifth instar nymphs in batches of 20 were treated topically with $1 \mu\text{l}$ ($10 \mu\text{g}$) of 8-allyl-7-flavonyl-N-methyl carbamate per insect. Parallel controls were treated with acetone $1 \mu\text{l}$ /insect. Control and treated bugs were fed on soaked cotton seeds and were maintained under identical conditions. The scoring to evaluate percentage of juvenile hormone (JH) activity was calculated with slight modifications of Bransby-Williams¹.

The effects produced by the chemical were similar to those of the JH mimics and consisted of formation of adultoids, reduction in duration of mating, reduction in egg laying and suppression of hatchability. Thus as against all the nymphs moulting into adults among untreated control, 2 died and 18 turned into adultoids out of the 20 treated nymphs. Further, when the untreated female bugs laid 70 eggs/female on an average, the treated females laid only 3 eggs per insect. When 97% of eggs of normal insect hatched, none of the eggs laid by the treated females hatched. When treated bugs were dissected after the first oviposition, a few eggs of the first batch were seen to be attached to the second batch of eggs (figure 1). Reduced number



Figure 1 & 2. 1. Note the first batch of eggs attached to the second batch of developing eggs ($\times 10$). 2. Note the reduced number of oocytes ($\times 15$).

of oocytes (figure 2) and inhibition of vitellogenesis were the other reproductive abnormalities.

All these effects confirm to those obtained by other workers²⁻⁵ using synthetic juvenile hormones and their mimics.

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