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A SIMPLE METHOD FOR COLLECTING EGGS OF *STROMATIUM BARBATUM* FABR. (COLEOPTERA: CERAMBYCIDAE)

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STROMATIUM barbatum Fabr., a long-horned borer of about 350 species of seasoned timber¹, is found throughout India². In nature, eggs are laid on rough surfaces and in holes or shallow depressions of wood^{2,3}. Fresh, clean and healthy eggs are essential for biological investigations of economically important insects. Raros and Holdaway⁴ described a simple method using pads of nylon-netting for obtaining large numbers of eggs of *Diabrotica longicornis* (Say), an economically important Chrysomelid beetle. Keeping these in view, the authors describe a simple method for collecting large numbers of eggs of Cerambycid beetles, especially *S. barbatum*. Infested branches of *Shorea robusta* were collected from Rajabasa village in Similipal forest, Orissa and kept in the laboratory. Adult beetles were collected upon emergence from these infested branches during June-July of 1981 and 1982. One hundred pairs of freshly emerged beetles were equally distributed in ten paper boxes (25 × 20 × 10 cm), the sides of which were punctured for aeration. The beetles were kept in a dark room, at 30° ± 2°C and RH 80 ± 2%. Numerous materials viz., craft paper, newsprint and newspaper, surface-scratched blotting paper, thin corrugated cardboard, cellophane paper, waxed paper, wads of cotton, nylon, silk and cotton cloth of various textures were tested for suitability as an oviposition substratum. Each test material mounted by wire staples on a thick cardboard base was placed in each box containing the beetles. The feeding of the adults was not essential for survival and reproductive lives for 9 days or more for both sexes² when most of the eggs were laid by the females. Water-soaked absorbent cotton was kept in a small watch glass and placed in each box. Among the materials tested, females were found to oviposit most readily in the layers of dry craft paper. Further tests with this material showed that a single layer was preferred to 2, 3 and 4 layers. Another 100 pairs of beetles confined in 10 such test boxes were found to lay eggs on loosely-held layers but not on the portions where the material was tightly held.

The number of eggs laid per day on the material by the said pairs of beetles was recorded to be 1484 on an average. The eggs can easily be obtained and counted by this method. Eggs so obtained are clean and free from any mechanical injury and can be used directly for experimental work.

However, the present finding indicates that a smooth surface is also preferred for oviposition by this species and it does not corroborate Beeson's report² that completely smooth surfaces are avoided for oviposition.

The Teacher Fellowship awarded to SNP by UGC, New Delhi, is gratefully acknowledged.

7 October 1982; Revised 21 March 1983

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EFFECT OF SUMITHION ON THE OVARIES OF FRESHWATER FISH *GARRA MULLYA* (SYKES).

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PESTICIDES have been recognised as serious pollutants of the aquatic ecosystem with deleterious effects on the associated organisms. So far, very few attempts have been made to study the effects of pesticides on the reproductive potency of fish^{1,2}. The present work describes the effect of sublethal concentration of commonly used insecticide Sumithion (Fenitrothion) on the ovaries of the food fish, *Garra mullya*.

In the breeding season sexually mature fish were caught locally and acclimatized to the laboratory conditions. Thereafter 20 fish with average weight 12.5 g and an average total length 10 cm were exposed to 1 ppm. Sumithion (Rallis India Ltd. Bangalore) for 30 days at 25° ± 1°C. Appropriate controls were kept only in the aged tap water. They were fed on fresh lettuce. Water was changed every 2 days and fresh dose of the insecticide was added. The length and

weight of control and experimental fish were measured at the end of the experiment after which they were sacrificed by decapitation. The ovaries were dissected, weighed and fixed immediately in Bouin's fluid. Transverse sections were cut at $7\ \mu\text{m}$ and stained with Harris' haematoxylin and eosin. Gonosomatic index (GSI) was calculated to compare gonadal activities in both groups.

At the end of the experiment, average weight of the control and experimental fish was 13.1 g and 11.6 g respectively with no change in the total length. Sumithion-treated ovaries were greatly reduced in size and weight (av. wt. 0.96 g) and appeared extremely thin as against the control ovaries (av. wt. 3.9 g) GSI of experimental fish (8.3 ± 2.56) was also greatly

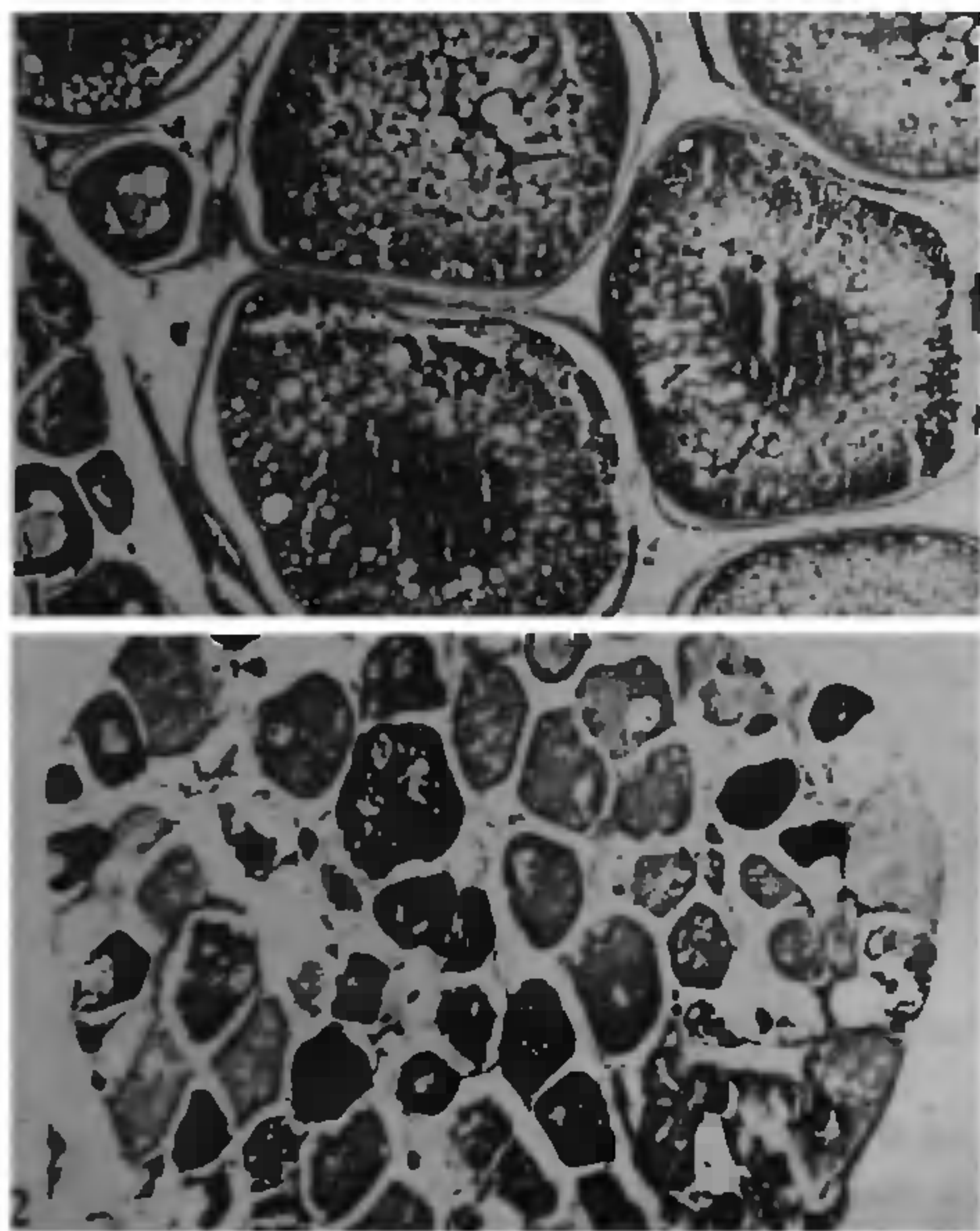


Figure 1 & 2. 1. Photomicrograph of T. S. of control ovary showing different stages of oocyte development. 2. Photomicrograph of T. S. of experimental ovary showing atretic oocytes. H & E. ($\times 62$).

reduced as compared with GSI of controls (30.35 ± 4.5). The histological observation of the control ovary showed three stages of oocyte development (figure 1) as described by Somwanshi³. A large number of mature oocytes were present in the control ovaries. The most striking effect observed in Sumithion-treated ovaries was the total disappearance of mature oocytes. Very few (5.7%) immature oocytes were observed (figure 2) and the remaining maturing oocytes underwent atresia. The atretic follicles showed hypertrophy of the follicle epithelial cells which immigrated into the ooplasm devoured the yolk mass and finally filled the entire atretic follicle.

Kling² reported that sublethal concentrations of Lebaycid caused total atresia in the ovaries of *Tilapia leucostica*. Carlson¹ also reported that the carbaryl prevents reproduction, besides decreasing the survival of fish and ovaries appear in a resorptive state. Our observations agree with these studies. Gonadal changes are regulated by the varied titer of gonadotrophic hormone⁴ and the atresia of the follicles is due to lack of sufficient endogenous gonadotropin as the growth of the follicle is principally dependent on the level of gonadotropin. The atresia of follicles now observed may be due to the inhibition of enzyme in steroidogenesis by the insecticide; supporting the evidence presented by Kapur *et al*⁵ that the insecticide affects the functioning of steroid enzyme system in the gonads of *Cyprinus carpio*.

The author wish to thank Dr V. Agnihothrudu and Mr. P. R. Borde for the gift of insecticide. KRP is grateful to UGC for the award of a fellowship.

20 January 1983.

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