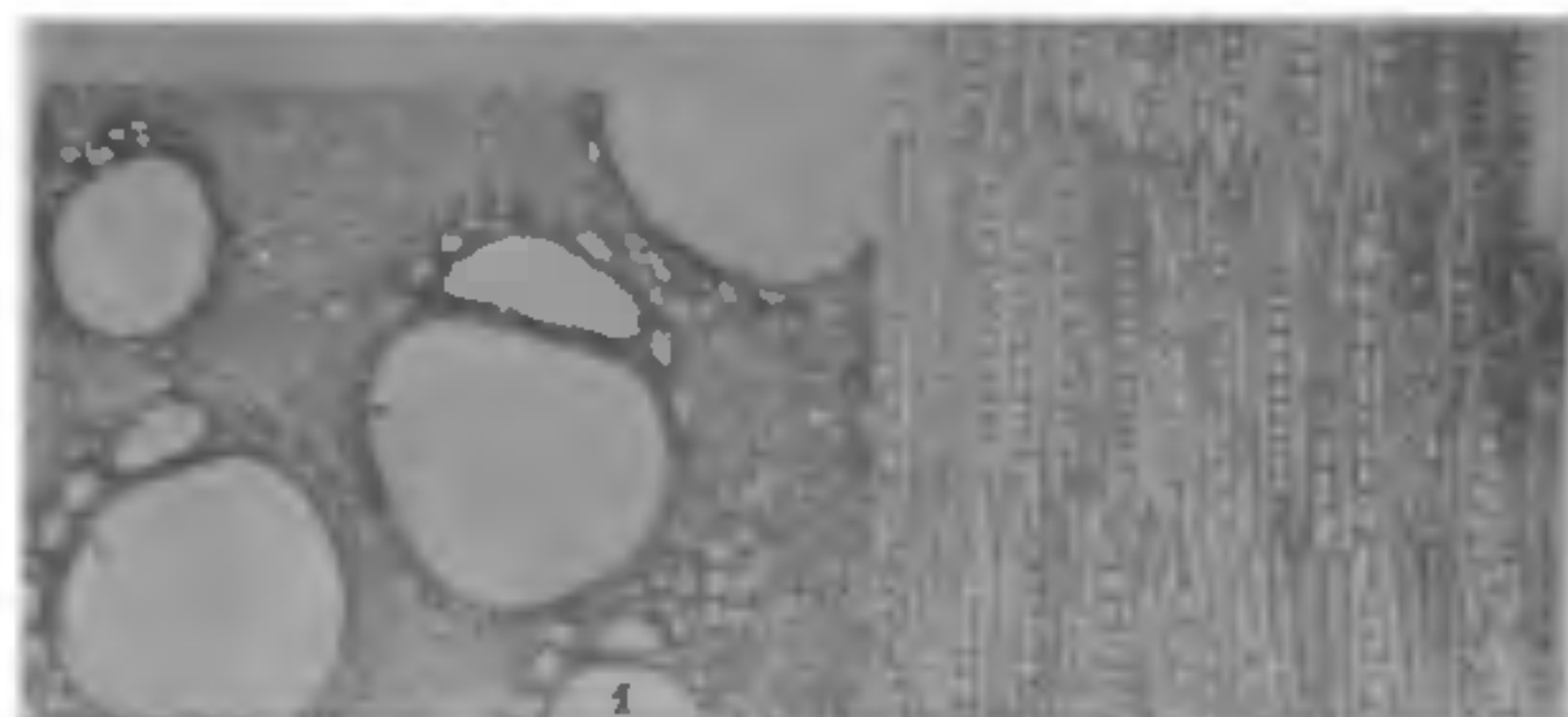


paratracheal vasicentric and aliform. Parenchyma cells are crystaliferous. Rays are sinuous and are mostly uniseriate with some bi- and triseriate ones. Ray conforms to heterogeneous II-A type. Rays are storeyed (Fig. 2). Ray-vessel pitting is similar to that of intervacular pitting. Both fibre tracheids and libriform fibres are present.



FIGS. 1-2. Fig. 1. T.S. showing vessels in singles and radial multiples of two, vasicentric parenchyma, thin walled fibres and sinuous rays  $\times 1,600$ . Fig. 2. T.L.S. showing storeyed heterogeneous rays, strand parenchyma with crystals  $\times 1,600$ .

The presence of storeyed rays in this genus is recorded for the first time in this investigation, although the wood of Rhamnaceae was studied by a number of earlier workers.

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## EFFECT OF THIOACETAMIDE ON PUPARIATION OF HOUSEFLY

PUPARIUM formation or pupariation is a critical and hormonal dependent process in the development of cyclorrhaphous flies<sup>1, 2, 3, 4</sup>. Pupariation consists of distinct morphological events such as: (i) retraction of anterior segments, (ii) contraction of subcuticular musculature and longitudinal shortening of the body, (iii) cuticular shrinkage to form a smooth surface and (iv) tanning<sup>5</sup>. Metabolic inhibitors of known cellular functions have been of great help to understand this process<sup>1, 2, 3</sup>. In this report we show that thioacetamide, an inhibitor of RNA transport from nucleus to cytoplasm<sup>6</sup>, inhibits differentially only some of the events of pupariation.

Strain of housefly used in the present study *Musca domestica* nebulosa Fabr. has been maintained in our laboratory at  $31 \pm 1^\circ\text{C}$ . Techniques for rearing the flies, collection and incubation of eggs have been the same as described earlier<sup>8</sup>. Desired concentrations of thioacetamide were prepared in milk and 50 larvae, 38 hr old, were transferred to 250 ml beaker containing thioacetamide-milk soaked cotton pads. Suitable control was kept and three replicates were prepared for each treatment. The experiments were carried out at  $35 \pm 1^\circ\text{C}$  as this temperature supports maximum rate of development of the larvae<sup>7</sup>. Larvae were checked at regular intervals and the number of pupae was noted by counting the white barrel-shaped structures in which tanning has set in. Only tanning was scored as an index of pupariation in the thioacetamide-treated larvae. The length of the puparia was measured as mentioned earlier<sup>8</sup>. Pupariation delay was determined graphically from hours after treatment versus the percentage puparia formed by comparing the time taken for 50% pupariation in control as well as treated larvae.

Under our experimental conditions, 75 hr old control larvae start showing the morphological processes associated with pupariation. Thioacetamide delays pupariation in a dose-dependent manner (Table I)

TABLE I  
Effect of thioacetamide on pupariation

Concentration (%)	Pupariation* delay (Hours)	Length of the puparia** (mm)
0	..	6.07 $\pm$ 0.05
0.05	6	8.4 $\pm$ 1.10
0.1	10	9.1 $\pm$ 1.60
0.2	17	9.1 $\pm$ 1.60

\* Each value is based upon three replicates of 50 larvae each.

\*\* Each value represents the mean of 30-50 pupae with the standard error (S.E.) of the mean.



and inhibits contraction of the larvae resulting in larval-like tanned puparia. The treated larvae are sluggish and sometimes even motionless.

Pupariation in flies is a complicated process involving intricately timed and balanced neurosecretory and neuromuscular mechanisms<sup>9</sup>. Ecdysone had been shown to control this process and its primary action is at the transcriptional-translational level<sup>1,6</sup>. The pupariation delay observed with thioacetamide may be the result of the inhibition of RNA transport which is essential for the synthetic apparatus of the cell<sup>2</sup>. It is of interest to point out that the inhibitors of RNA and protein syntheses have been shown to affect pupariation<sup>4,7</sup>. Alternatively, pupariation delay may be due to a disturbance in the endocrine system of the insect. Zderik and Fraenkel<sup>9</sup> are of the view that puparial shape could reflect whether the process has occurred normally or not. The length and wrinkled surface of the puparia seem to suggest that thioacetamide attacks only the longitudinal contraction and cuticular shrinkage like bee venom and tetradoxin<sup>8</sup>. Further studies using pure hormones on thioacetamide-treated larvae may elucidate the mechanism of pupariation delay induced by thioacetamide.

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ON A NEW CESTODE *YORKERIA SOUTHWELLI*  
 (CESTODA : ONCHOBOTHRIDAE) FROM  
 A MARINE FISH

A NEW species of *Yorkeria*, *Y. southwelli*, is described from a new host from India. Twentyfive specimens of this species have been collected from the spiral valve of *Ginglymostoma conolor* at Ratnagiri (West Coast of India).

Description

(Measurements in mm): The cestodes were composed of 30-40 segments. The largest worm measures 8 in length and 0.33 in width. Scolex bears four bothridia in pairs, the paired bothridia set on a stout stalk, two stalks uniting into common trunk in 'Y' or 'T' fashion. The stalk measures 0.91 in length and 0.11 in width in immature worms but measures 0.42 in length and 0.15 in width in mature worms, i.e., the length of stalk decreases and its width increases in mature worms. A short neck present. Each bothridium is oval (0.52-0.58 × 0.34-0.36), divides into two loculi by a transverse septum. Anterior small loculus measures 0.15 × 0.23 and posterior large loculus measures 0.33 × 0.34 in mature worms, and are armed with a pair of 'U' shaped hooks of bright yellow colour, unequal in size, placed near each lateral extremity of septum, small hooks measure 0.19 in length and 0.02 in maximum width, large hooks measure 0.38 in length and 0.04 in maximum width; inner limbs of the hooks are longer than the outer limbs. The stalks of the bothridia are covered with very minute 'T' and 'Rose thorn' shaped spines. Inner longitudinal muscle bundles are attached to each bothridium and continue in neck region and into the strobila.

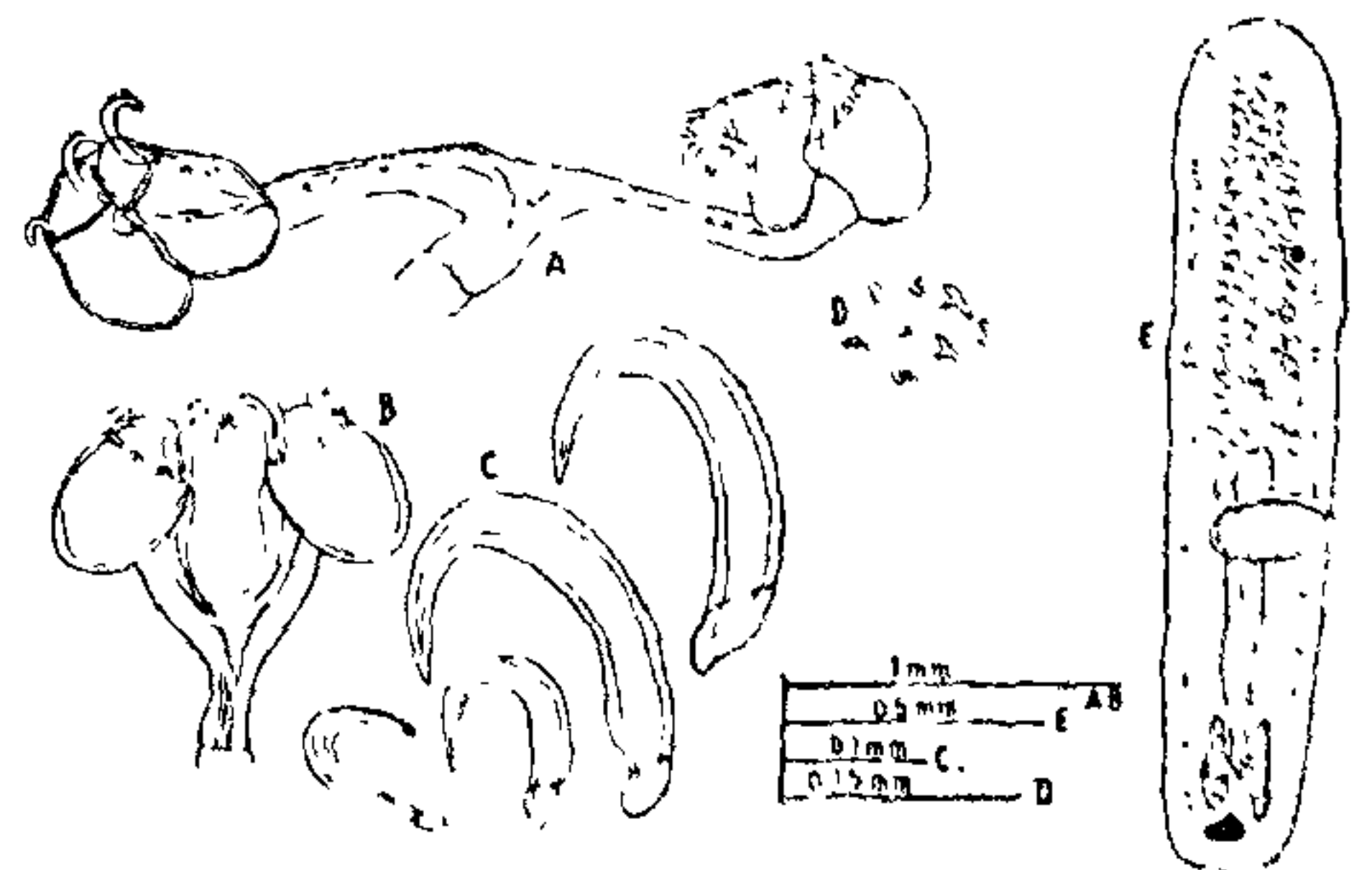


FIG. 1. *Yorkeria southwelli* n. sp. A, Scolex of immature worm; B, Scolex of mature worm; C, Bothridial hooks; D, 'T' and 'Rose thorn' shaped hooks of scolex; E, Mature segment.

Mature segment measures 1.55 in length and 0.33 in width. Testes rounded, 90-95 in number, in a single field, anterior to cirrus pouch, and measure 0.03 in