

the normal and the variant were stained with acetocarmine and it was observed that those of the non-dehiscent plant were less stained and deformed. The outer wall of the pollen grains and the spiny outgrowths thereon appeared thin and weak in the variant; also the stainable contents of its pollen grains were clumped. The size of the pollen grains was reduced (Fig. 3), the mean diameter being 109 microns as compared to 118.5 microns from the normal plant.

Selfing was tried in the nondehiscent variant but no boll setting occurred. Some flowers were hand pollinated with their own pollen obtained by crushing their anthers. No bolls were formed in this case either. Thus the plant seems to be completely male sterile.

Plants with nondehiscent anthers in cotton were earlier reported by Richmond and Kohel<sup>1</sup> in F<sub>2</sub> generation of a cross 'Texas 86 × D and PL-14'. Norman *et al.*<sup>2</sup> also found a male sterile plant in 'D<sub>2</sub> smooth progeny' that had M8 (M 8948) as the recurrent parent. In both these reports the sterility was partial, but the plant observed by us was completely male sterile as no boll formation occurred on selfing.

At maturity a few good bolls were obtained from the variant, presumably due to outcrossing. The seeds from these bolls appeared to be normal and were sown in the 1980 season. All the plants from these seeds appeared to be normal in all respects, including pollen fertility and boll formation, indicating that the male sterility is recessive.

Some plants similar to the male sterile plant described above were observed in the same population in the 1980 season as well. This suggests the presence of the recessive male sterility gene in the population.

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### **MNESITHIA LAEVIS—A NON-HOST FOR RICE GALL MIDGE**

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THE rice gall midge, *Orseolia oryzae* (Wood Mason), is one of the most destructive pests of rice. It has been reported to breed on several grass hosts<sup>1-4</sup>. Heavy gall midge infestation was observed on the grass, *Mnesithia laevis* Kunth, at the farm of the

Central Rice Research Institute. Though it has been reported as a potential alternative host for the rice gall midge by earlier workers<sup>2,3</sup> the peak incidence of the midge, the manner of gall formation and the morphology of the pupae appeared quite different from the rice gall midge to the authors. Consequently cross infestation studies involving the grass midge on rice and *vice versa* under laboratory conditions were undertaken to confirm whether the rice midge and *Mnesithia* midge are the same.

#### *Materials and Methods*

The rice gall midges reared on rice were released on potted healthy *M. laevis* plants and the midges reared on *M. laevis* were released on forty-day old susceptible rice cultivar Jaya grown in pots. In another set of experiment first instar maggots of the rice midges were inoculated on *M. laevis* grown in pots and *vice versa*. In both the experiments controls consisting of midges reared from rice to rice and *M. laevis* to *M. laevis* were maintained. These experiments were repeated five times with ten replications.

#### *Results and Discussion*

In all the cases the midges laid eggs on the plants. The eggs hatched three days after oviposition. However, there was no gall development in cases where rice midges laid eggs on *M. laevis* and *Mnesithia* midges laid on rice. The same result was observed in the case of larvae inoculation study also. But normal gall development was observed in check plants. In the case of rice to *M. laevis* inoculation, the growing point of the grass became yellowish followed by death of the central shoot within 4-5 days after the egg hatching. When the plants were dissected the dead first instar larvae were found accumulated at the growing point which showed brownish black spot. However, this reaction was not observed in *M. laevis* to rice cross infestation study wherein the larvae that hatched were not able to reach the growing point. These results are at variance with those of Israel *et al.*<sup>3</sup>. These studies indicate that there is no possibility of *M. laevis* serving as a host to rice gall midge in the field. In addition, we also detected morphological differences between the midges which were not observed by earlier workers<sup>2,3</sup>. The rice gall midge pupae possess bifid antennal cephalic horns and the unpigmented abdominal tergal spines are in single row (Fig. 1A), whereas the *M. laevis* pupae possess pointed (simple) antennal cephalic horns, the abdominal tergal spines which are prominent and randomly distributed with dark brownish pigmentation. The pigmentation is observed with naked eye on the pupal skin which remains on the gall after the emergence of the adult.

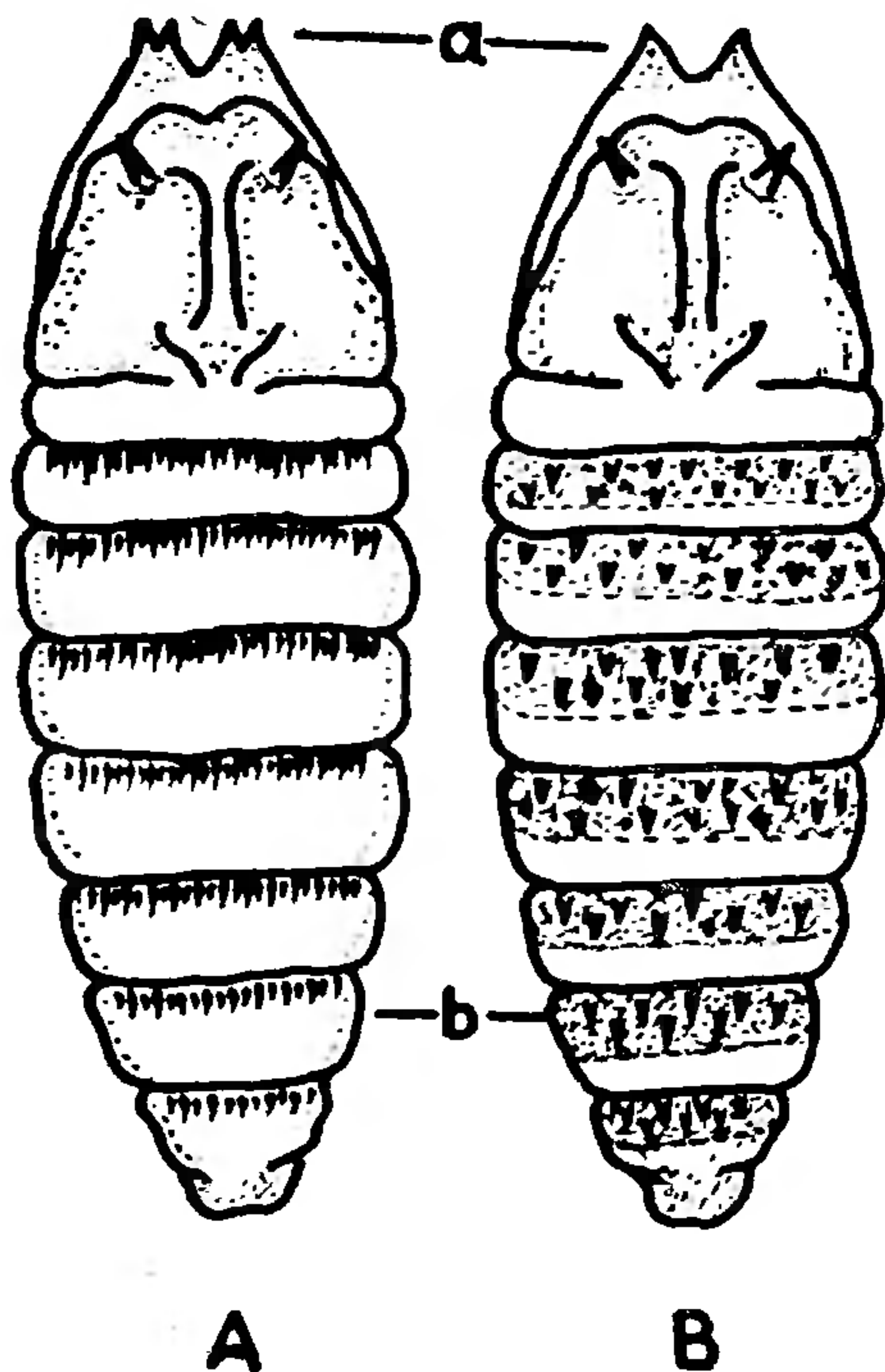


FIG. 1. A. Pupa of rice gall midge. B. Pupa of *Mnesithia* gall midge. a : Antennal horn, b : Tergal spine.

In view of the morphological differences and the results of cross-infestation study we conclude that the midges occurring on rice and *M. laevis* are different species. The gall midge specimens reared from *M. laevis* were identified as *Orseolia* sp. by the Commonwealth Institute of Entomology, London.

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### A NOTE ON THE INCIDENCE OF LIVER ADENOCARCINOMA IN THE COMMON CROW *CORVUS SPLENDENS SPLENDENS*

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TUMOURS encountered in birds include avian lymphocytoma, leucosis adenoma, cystic adenoma, leiomyoma, papilloma, malignant hepatoma, haemangioma, granulosa cell tumour, adenocarcinoma, sarcoma and fibrosarcoma<sup>1,3,5,7,10</sup>. Although a good deal of information is available on the occurrence of tumours in birds, they are restricted only to birds in captivity<sup>4</sup> and the incidence of tumours in captive wild birds was reported to be as low as 1.4%<sup>8</sup>. Some of the surveys conducted in wild birds, not reared in captivity, revealed incidence of tumours, ranging from 0.1 to 1%<sup>4</sup>.

The present note reports the incidence of liver adenocarcinoma in the common crow *Corvus splendens splendens*. Adenocarcinoma is the malignant growth or tumour of glandular epithelium most commonly found in mammals like horses, dogs and cattle<sup>11</sup>. This type of carcinoma is considered to be the most common in the breast and ovaries of higher vertebrates and its occurrence in them in the liver is less often noticed<sup>9</sup>.

The individual of *Corvus* used for the present study was collected as a dead specimen after it fell from a tree top in the campus of the Zoological Survey of India, Southern Regional Station, Madras, on 20 February 1980. Postmortem examination of the viscera revealed a heavily damaged liver. Macroscopic examination revealed that the liver was enlarged, with its surface irregular due to the presence of numerous nodules (Fig. 1). The nodular portion represented about 75% of the entire liver. The nodules, measured from 1 to 6 mm in diameter, were spherical and dull

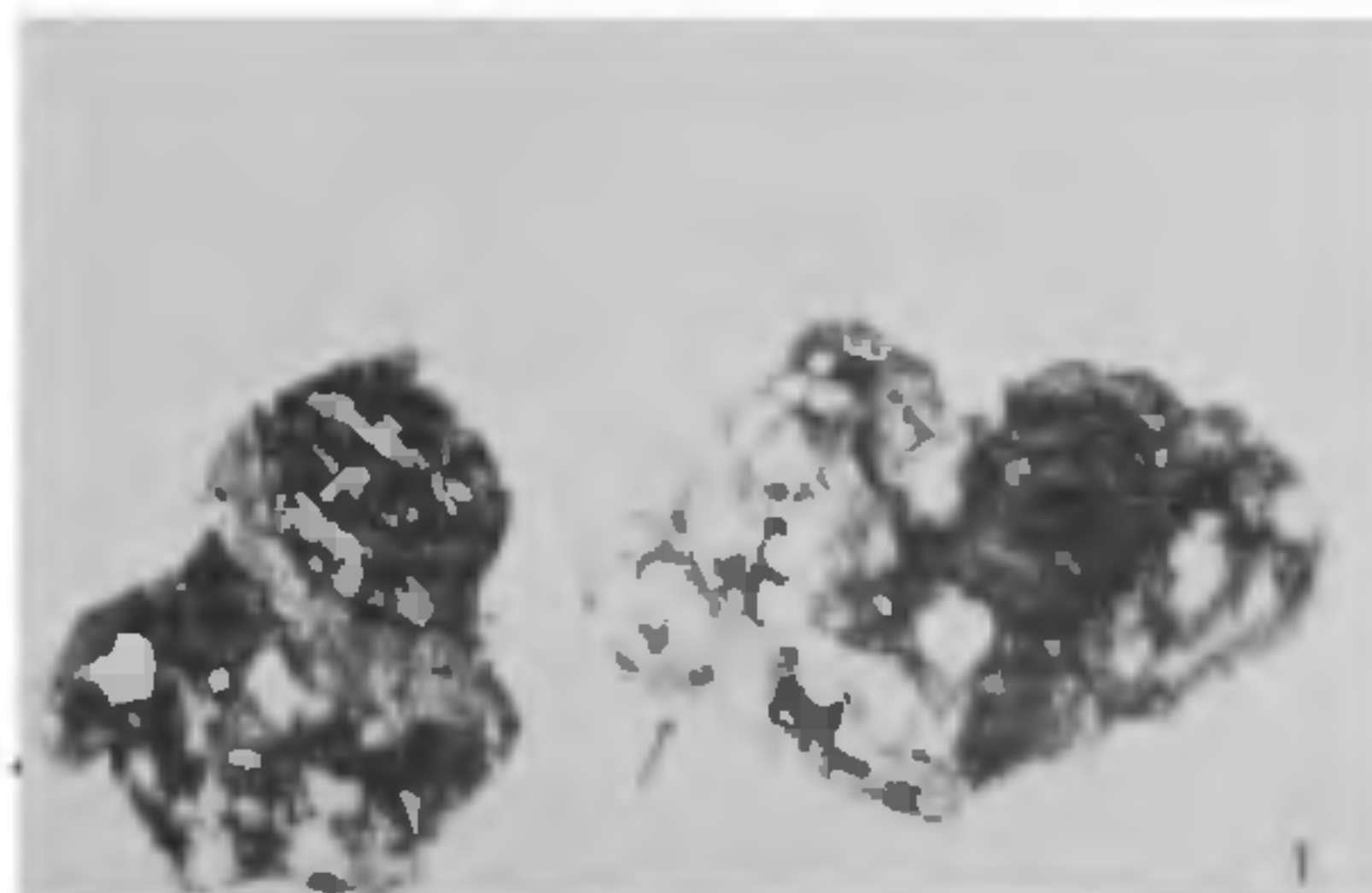


FIG. 1. The whole liver showing the nodules (arrow marks 1 and 1a).