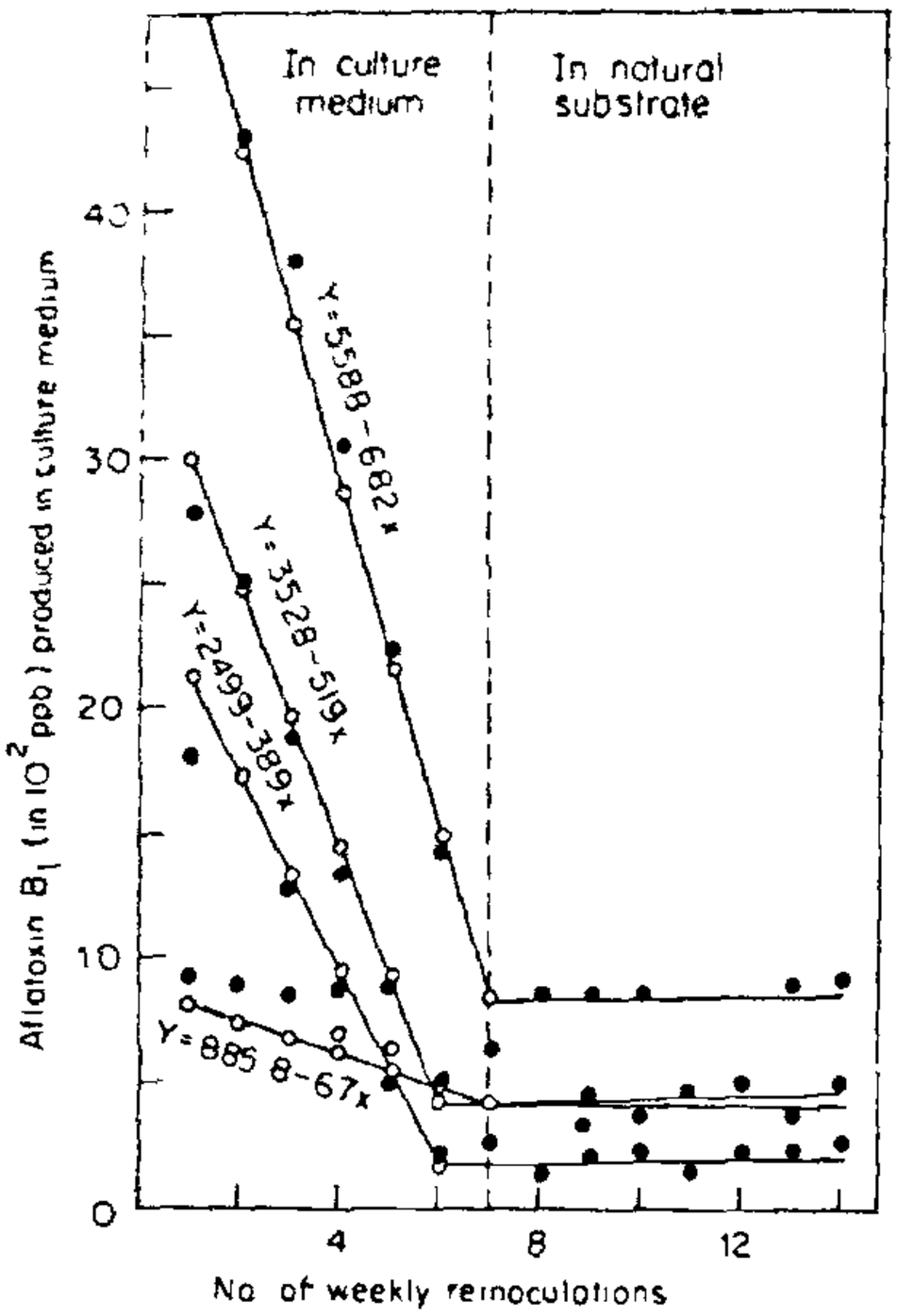

Figure 1. Graph showing loss in aflatoxigenicity at different stages of subculturing.

is represented by lines of regression (figure 1). After seventh week the amount of toxin decreased to its lowest level about 800 ppb in the strain having the maximum toxicity, and 200 ppb in the strain with minimum toxicity. The rate of decrease in the toxin elaboration was highest (682.X) and lowest (67.X) in the strains with maximum and minimum toxigenicity respectively. Reinoculations on natural substrates (maize, wheat and mustard cake) failed to revive or induce any increase in the toxin production[5].

Since sexual reproduction is not known in the fungus, the decrease in aflatoxin during subculturing (SMKY medium) cannot be attributed to any negative selection of toxin elaborating genes. Fall in toxigenic potentials during subculturing and its non-restoration can possibly be associated with the regulation of toxin elaborating genes in the fungus. Aflatoxin elaboration seems to be one such adaptation, which is induced in those strains of *A. flavus* which have to face the competitive and stressed conditions in nature. This acquired character gradually fades out when the fungus is transferred to culture media which are nutritionally rich without any competition for food. The loss of toxigenicity upon reversion to substrate medium may be due to genic assimilation of acquired character[6]. According to this a phenotypic character which initially is produced only in response to some environmental influence, is taken over by the genotype, so that phenotype is formed even in the absence of factors which caused it to appear earlier.

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POWDERY MILDEW OF *MOMORDICA COCHINCHINENSIS*

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MOMORDICA COCHINCHINENSIS Spreng. is a cucurbitaceous vegetable grown extensively in North-Eastern India. A powdery mildew was noticed during the summer (May–June) of 1986, affecting plants grown in the experimental plots of this School and in the cultivator's fields as well.

The pathogen infects all the green parts of the plant viz. leaves, stems and tendrils. Powdery growth first appears on the upper surface of the lower leaves as small (2–4 mm diam), scattered, white, almost circular colonies which eventually coalesce to form big patches covering the entire leaf surface. The disease was more prevalent on the older leaves. The colour of the colony gradually changes from white to yellowish-brown after aging. In severe infection the plants exhibited apparently talcum-powder-like appearance from a distance. Such plants showed reduction in leaf size, which became chlorotic and senescent, and finally died.

Conidia from mildewed leaves were dusted on to healthy plants. Sporulating colonies developed on such plants after 7 days of inoculation.

Conidia germinated well and produced a single germtube on glass slide at 100% relative humidity when incubated for 24 h in the dark. The pathogen was identified as *Oidium* sp. (conidia 10–20 × 20–60 μm in long chain). This is the first report of *Oidium* sp. on *M. cochinchinensis* from India[1–3].

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SEX DETERMINATION IN THE LARVAE AND PUPAE OF SOYBEAN LEAF MINER, *APROAEREMA MODICELLA* DEVENTER

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SOYBEAN leaf miner, *Aproaerema modicella* Deventer (*Stomopteryx subsecivella* Zeller) is a serious pest of soybean and groundnut in Madhya Pradesh, Maharashtra, Gujarat, Tamil Nadu and Andhra Pradesh[1–4]. Gujrati *et al*[5] studied the biology of the pest and Mohammad[6] reviewed the available literature on the pest, but studies on sex differences in larval and pupal stages are lacking. Determination of sex in adults by examining the genitalia is impracticable as many of the adults are injured and become unfit for experiments. Attempts were, therefore, made to determine the sex at larval and pupal stages on the basis of easily distinguishable characters.

A laboratory culture of the pest was maintained during the rainy season (July to October) of 1986 at Sehore in Madhya Pradesh. Larvae having a pair of spots on the 5th abdominal segments and without spots were kept in separate petri dishes (10 cm dia). Pupae developing from these larvae were further examined for their genital openings, and finally adults formed from these pupae were dissected for confirmation of male and female sexes.

While rearing, two types of larvae were observed: one having a pair of spots on the 5th abdominal segments and in others these spots were absent. These spots appeared in the second instar as pinkish-brown patches, which changed to dark pinkish-brown in the third instar and brownish-violet in the fourth. The larvae having spots finally developed into male adults, while larvae without spots emerged as female adults. While studying the biology of *A. modicella* on soybean, Gujrati *et al*[5] found two types of larvae, one with spots on the 5th abdominal segments and in others these were absent, but they could not identify sexes on the basis of these spots. However, Mohammad[6] reported that the male larvae have pinkish gonads underneath the dorsum of the 5th abdominal segments, but he did not mention the varying colours of gonads in different instars. After pupation, pupae were observed for genital openings. It was found that in female pupa a slit-like genital opening was situated on the 8th sternum and anal opening was located on the 10th sternum. The 8th and 9th segments were not completely demarcated and the intersegmental line was also rudimentary between the 9th and 10th sterna. Thus the pupa had a composite sterna of 8th, 9th and 10th segments. In the male pupa, the genital opening was present in the 9th sternum of the abdomen. The intersegmental line between the 8th and 9th segments was prominent, whereas it was not prominent between the 9th and 10th abdominal segments. Male pupae also had two small pad-like structures on either side of the anal slit on the 9th abdominal sterna, but in female pupae, these pads were absent. The female pupae measured 6.15 mm in length, while the male pupae were 5.21 mm long. Arrangement of genital openings in *A. modicella* was found to be similar to that of *Spilosoma obliqua* Walker and *Spodoptera litura* Fabricius[7,8].

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