

sieve tube or cell. Since no visible injury is caused to the host plants by the feeding of white-flies, it is evident that the insect saliva is non-toxic to plant tissues.

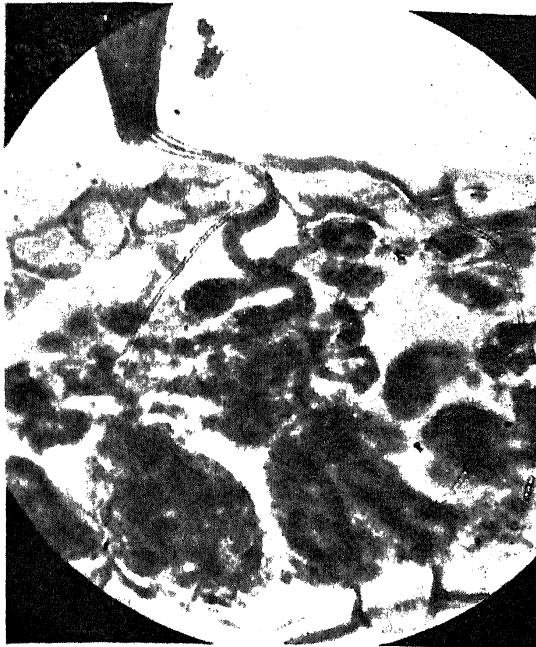


FIG. 2. T. S. of leaf of *Phaseolus lunatus* showing the stylets and the stylet track. The position of the salivary sheath in leaf indicates that the insect had been feeding upon the phloem.

This work is being carried out under a scheme financed by the Indian Council of Agricultural Research.

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December 6, 1948.

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PRODUCTION OF OOSPORES BY *SCLEROSPORA SORGHI* ON MAIZE

WITH the exception of *Sclerospora macrospora* Sacc., no other definite species of *Sclerospora* with the non-sexual stage bearing conidia or sporangia on tree-like conidiophores, has so far been reported to form the oosporic stage on maize (*Zea mays* L.). In February 1940, the writer observed some maize plants, variety Kashmir Sweet, which were quite stunted and etiolated. An examination of the leaves indicated that

the plants had been attacked by a species of *Sclerospora*. Other varieties of maize, even though they were affected by the same disease, did not show the formation of oospores.

Comparative studies of conidia, oospores, etc., have indicated that this *Sclerospora* is identical, with regard to shape and size, with *Sclerospora sorghi* (Kulkarni) Weston and Uppal. Cross-inoculation tests have further shown that *Sclerospora sorghi* from Jowar (*Sorghum vulgare*) can infect the Kashmir Sweet variety of maize and vice versa.

As the position of *Sclerospora macrospora* whose non-sexual stage does not involve tree-like conidiophores but unusual single, large Phytophthora-like sporangia borne singly on stalk, in the genus *Sclerospora* is doubtful, this perhaps is the first report of the discovery of the oosporic stage on maize.

A detailed report will soon be published.

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January 15, 1949.

DOLICHOS BIFLORUS L.—A NEW HOST OF *XANTHOMONAS PHASEOLI* *SOJENSE* (HEDGES) DOWSON

SOYBEAN cultivation in this Province is at present of minor importance. On the other hand, *Kulthi* (*D. biflorus*) is cultivated quite commonly as a pulse and fodder crop either mixed with Jowar and Bajri or alone on light soils during the kharif season. A bacterial leaf-spot on *kulthi* was found on the Government Farm, Nipani in Belgaum district in August 1948. The disease resembled that on soybean so much so that the pathogene was isolated and studied in detail.

On the *kulthi* leaves, the pathogene produces numerous minute specks which coalesce forming lesions which measure 1 to 2 mm. The spots are raised, rough to touch mainly due to dried bacterial exudations and are found on both sides of the leaves with a light brown border around such spots. The pathogene was found to infect leaf-petioles also. The bacterium isolated from *kulthi* leaves was sprayed on 2 varieties of this host, viz., one with black seeds from Nipani and the other from Poona with brown seeds. The black-seeded Nipani variety looked very much like the soybean

plants in its seedling stage that it was considered advisable to inoculate soybean plants with the *kulthi* culture. Both the hosts showed characteristic symptoms of the disease in 10 days. *X. phaseoli sojense* was then sprayed on the leaves of soybean and *kulthi* when it was found to produce the characteristic symptoms.

Since the *kulthi* organism resembles *X. phaseoli sojense* in morphological, cultural and physiological characters and since both these pathogens are cross-inoculable, it is considered that *D. biflorus* is a new host of *X. phaseoli sojense* hitherto unreported.

Plant Path. Laboratory,
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January 15, 1949.

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A REMARKABLE ABNORMALITY IN THE DEVELOPMENT OF *VIVIPARUS* *DISSIMILIS* (MULLER)

DRUMMOND¹ observed a few abnormalities in the development of *Paludina* (= *Viviparus*), and Mattox² has described the abnormalities in the intra-uterine young ones of *Campeloma*. Apart from these observa-

malities in *Viviparus dissimilis*, which is represented in the accompanying illustrations. The embryo, which was living and actively swimming in the albumen in the egg, belongs to an advanced stage of development. The head and foot are normal. The tentacles, the eyes, the buccal mass, the radula, the salivary glands, the opercular area of the foot and the ctenidium have all attained the definitive organization. But the visceral hump is very peculiar. It has bulged posteriorly and dorsally, and is roughly thimble-shaped with a ventral flexure, but without spiral coiling or lateral torsion. The neck of tissue between the visceral mass and the rest of the body is much elongated as compared with the normal condition, and not twisted. Other noteworthy features relating to the abnormality of the visceral mass are the complete absence of a shell and the non-differentiation of the digestive gland.

But the most striking features relate to the mantle cavity, and especially the ctenidium. The mantle cavity is but little developed, being in the form of shallow and open cavity without a roof, and situated at the hind end of the embryo. It is better developed on the left side. The

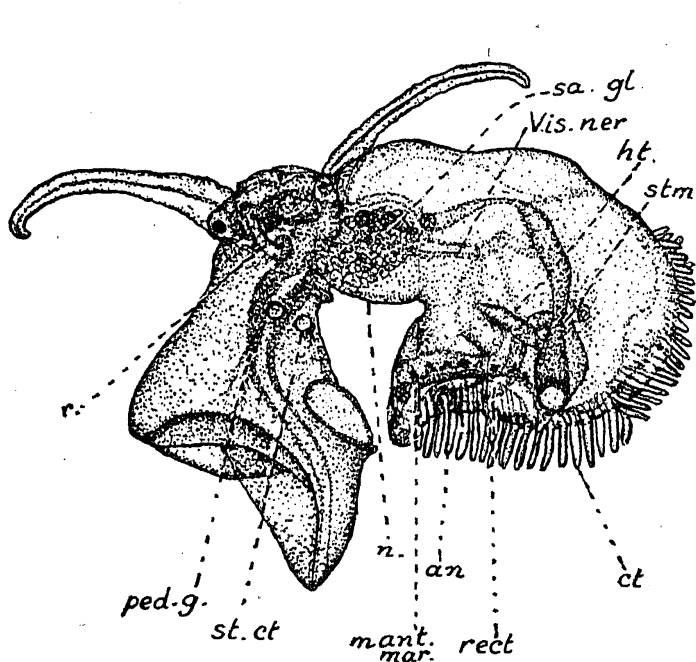


FIG. 1. Abnormal embryo of *Viviparus dissimilis*, viewed from the left side

an., anus; ct., ctenidium; gon., gonadial rudiment; ht., heart; mant. mar., mantle margin; n., neck; ped. g., pedal ganglion; per., pericardium; r., radular sac; rect., rectum; sa. gl., salivary gland; stm., stomach; st. ct., statocyst; visc. ner., visceral nerve.

tions, no detailed studies of abnormal Gastropod development have been made. Recently I came across a remarkable abnor-

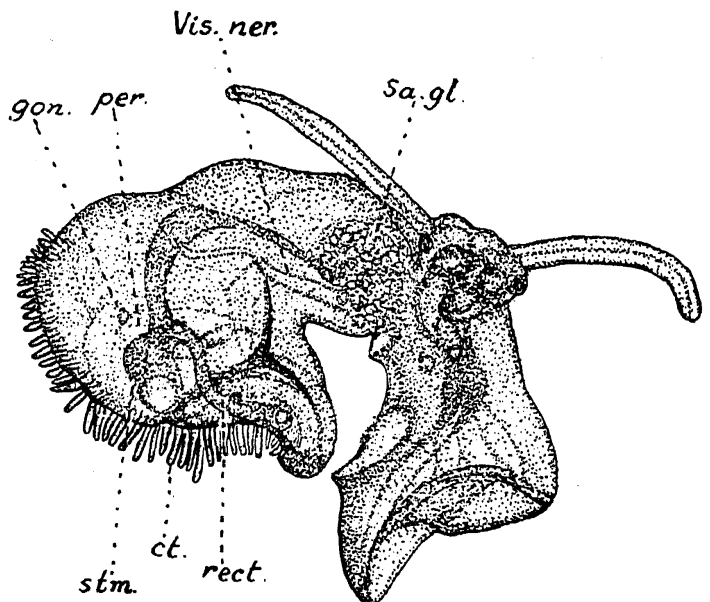


FIG. 2. Abnormal embryo of *Viviparus dissimilis*, viewed from the right side

mality however is well developed, much elongated and composed of about forty filaments. But its position is abnormal, as