occurred in high percentage while no disease occurred in a field where the crop was grown for the first time. This suggested that the virus was probably carried in the soil possibly by a soil inhabiting nematode as has been observed in many other virus diseases. To test this proposition a field experiment with five D.D. treated plots and five untreated plots as control was laid out. Each plot had 21 redgram plants. Pre-treatment examination of the soil showed that it contained species of *Pratylenchus, Tylenchorynchus, Rotylenchulus* and *Helicotylenchus*. D.D. treatment reduced the nematode population very considerably. Counts of diseased plants taken during November 1962 showed that the treated plots contained a very much lesser percentage of diseased plants than the untreated plots. The experiment therefore seemed to indicate that the virus is probably transmitted by one or more of the soil nematode species listed above. Further studies are in progress.

* In the course of the discussion it was suggested and readily agreed to that the transmission of the disease should be established by controlled greenhouse experiments. In fact such experiments are currently going on. The possibility of the effect of the fumigantitself in the soil on the virus should be eliminated. However, the virus being non sap transmissible its presence in the soil absorbed on to clay particles was only a very remote possibility. It was also suggested that any synergistic interaction between the nematode vector and the virus may also be investigated.

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8. A PRELIMINARY NOTE ON VIRUS DISEASES OF CHILLI IN MADRAS STATE

by

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Mosaic type of diseases are prevalent on chilli at various places in Coimbatore, Salem and Tirunelveli districts. The incidence of these diseases in the field varied from 0·5% to 75%. During the present study viruses involved in these diseases were established under green house conditions either by mechanical or aphid transmission.

From the mode of transmission these virus isolates could be classified into four broad groups viz., (a) transmissible by sap alone; (b) transmissible by sap and aphid vectors, (c) transmissible by aphid vectors alone and (d) a seed borne virus transmissible by sap and aphid vector.

Two isolates belonging to the first group produced systemic infection on chilli, tomato and tobacco and local necrotic lesions on *Nicotiana glutinosa* and *Datura metal*. The thermal inactivation point and dilution end points were between 85°C. and 90°C. and 1:100,000 and 1:1,000,000 respectively. They gave positive precipitin reaction with TMV antiserum and were therefore indentified as tobacco mosaic virus.

All the other isolates produced systemic symptoms on chilli and did not infect any other host so far tested. From the symptomatology and mode of transmission it is considered likely that these may include cucumber mosaic virus, all of which are known to infect chilli. Further elaborate tests are planned to identify them definitely.

* It was clarified during the discussion on this paper that chilli viruses could not be identified solely on symptomatology but a long series of elaborate tests are necessary for their identification. It was also stated that the common 'yellowing' disease of chillies did not appear to be viral in nature but may incided by nematodes.

9. STUDIES ON A VIRUS ISOLATED FROM POTATO

by

C. P. SUBRAMANYAM

A detailed study of a virus isolated from potato has been made. The virus isolate was both sap transmissible and transmissible by *Myzus persicae* Sulz. which was found to be a very effective vector. Typical symptoms of the diseases were produced within 11 to 12 days of inoculation. Various symptoms produced on chilli and potato variety are described. The virus had a thermal inactivation point of 55° — 60° C., a dilution end point of 1 : 500 — 1 : 750 and a longevity of two days at room temperature *in vitro*. The virus was tentatively identified as Potato virus Y.

The host physiology of virus infected plants using chilli as the test plant has been studied with regard to chlorophyll content, carbohydrate/nitrogen ratio and respiration. A reduction in total chlorophyll, total carbohydrate, total nitrogen and carbohydrate/nitrogen ratio has been observed in the infected leaves.

The change in respiration rates during the inoculation period is discussed.

The possibility of chemotherapy using malachite green and growth regulators have been tested. It was found that there was a delay in the expression of symptoms in treated plants when the compounds were applied just after inoculation. In cases when malachite green was applied after the development of symptom it was seen that there was a reduction in the severity of the symptom in the treated plants.

* It was suggested during the discussion of the paper that a local lesion host should be looked for as this would greatly facilitate investigation on this virus.