

NEW VIRUS DISEASES OF PLANTS IN PORTO RICO

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During the past year six previously unreported virus diseases have been studied by the writer but some of them had been observed previous to this time. Descriptions are published at this time for the purpose of record and the convenience of the workers.

The mosaic of *Crotalaria striata* DC, is becoming quite abundant in Porto Rico. The patterns are well defined mosaics of dark and light green in which either color may predominate. In some cases the leaves are almost entirely light green or yellow. Occasionally plants are dwarfed by the disease. Severely diseased plants produce few or no seeds. Tests with seeds from diseased plants have thus far given healthy plants. Field observations indicate that the disease is carried by insects. Well advanced plants that have not shown symptoms of the disease frequently develop the disease in the new growths. The writer has demonstrated that the disease can be transmitted by inoculation with juice from diseased plants.

The mosaic of *Commelina longicaulis* Jacq., was first found on the little island of Vieques. This plant grows as a weed in many of the West Indies. The symptoms are rather large chlorotic areas, sometimes forming rings. The infected plants are as vigorous as the healthy and the symptoms do not appear unless the plants are making a vigorous growth. The symptoms disappear during periods of dry weather.

What appears to be a virus disease of *Carica papaya* L. attacked the plants in the Station grounds a few years ago but the gardener destroyed the plants before the writer could make a study of them. This or a similar disease was later described by Dr. R. Ciferri of Santo Domingo as "curly leaf" but he was uncertain as to the cause. My histological studies indicate that it is a virus disease. The young leaves become more or less curled and in severe cases, this curling persists throughout the life of the plant. The lower leaves become yellow and fall. One or both symptoms may appear on the plants. Sometimes all the older leaves fall, leaving a cluster or rosette of leaves at the apex. In severe cases the fruits are reduced in number and size.

Abutilon hirtum (Lam.) Sweet, is a wild species of Malvaceae which shows a high percentage of diseased plants. The patterns

vary and the chlorotic areas are yellowish or white. The diseased plants are usually smaller than the healthy plants but many of them are full sized and do not appear to be injured by the disease. The diseased plants produce very few seeds. The writer has collected and sown a considerable number of these seeds but thus far the seedlings have not shown any symptoms of the disease. Field observation shows that it spreads from plant to plant and indicates that it is carried by insects. This disease is interesting because of the fact that the variegated *Abutilons* which became so popular as ornamentals in Europe about seventy years ago are said to have come from the West Indies.

A mosaic disease is very common on *Sida carpinifolia* L. and *S. rhombifolia* L. and has the same characteristics as the one on *A. hirtum* and may be due to the same virus. This disease is abundant and the diseased and healthy plants may be found growing in contact.

Andenoropium gossypifolium (L.) Pohl. is subject to mosaic which is very common. The chlorotic areas are numerous, variable in size and form, frequently coalescing but very rarely covering the entire leaf. The chlorotic areas grow slower than the green parts which results in slight puckering.

Ipomoea nil (L.) Roth, which grows abundantly throughout the island is subject to a mosaic which varies from a slight mottling with yellowish or almost white areas to leaves which do not show any of the green color.

Mr. Francisco Seín, Jr., Assistant Entomologist has called the attention of the writer to a mottling of the mulberry leaves. This disease appears as a mottling very characteristic of the mosaic. A second pattern which appears as zigzag lines across the leaves may be due to the same cause. Mr. Seín tells me that he has transmitted this disease by means of scions.

EXPLANATION OF FIGURES

Figure 1.—Healthy and Mosaic leaves of *Crotalaria striata*.

Figure 2.—Mosaic leaves of *Commelina longicaulis*.

Figures 3 & 4.—*Carica papaya* plant showing effect of a virus disease.

Figure 5.—Advanced stage of *Carica papaya* with a virus disease.

Figure 6.—A very small plant of *Carica papaya* dwarfed as a result of a virus disease. Note the normal plants on either side.

Figure 7.—Diseased leaf of *C. papaya*.

Figure 8.—Healthy leaf of *C. papaya*.

Plate No.—. One healthy and seven mosaic leaves of *Abutilon hirtum*.

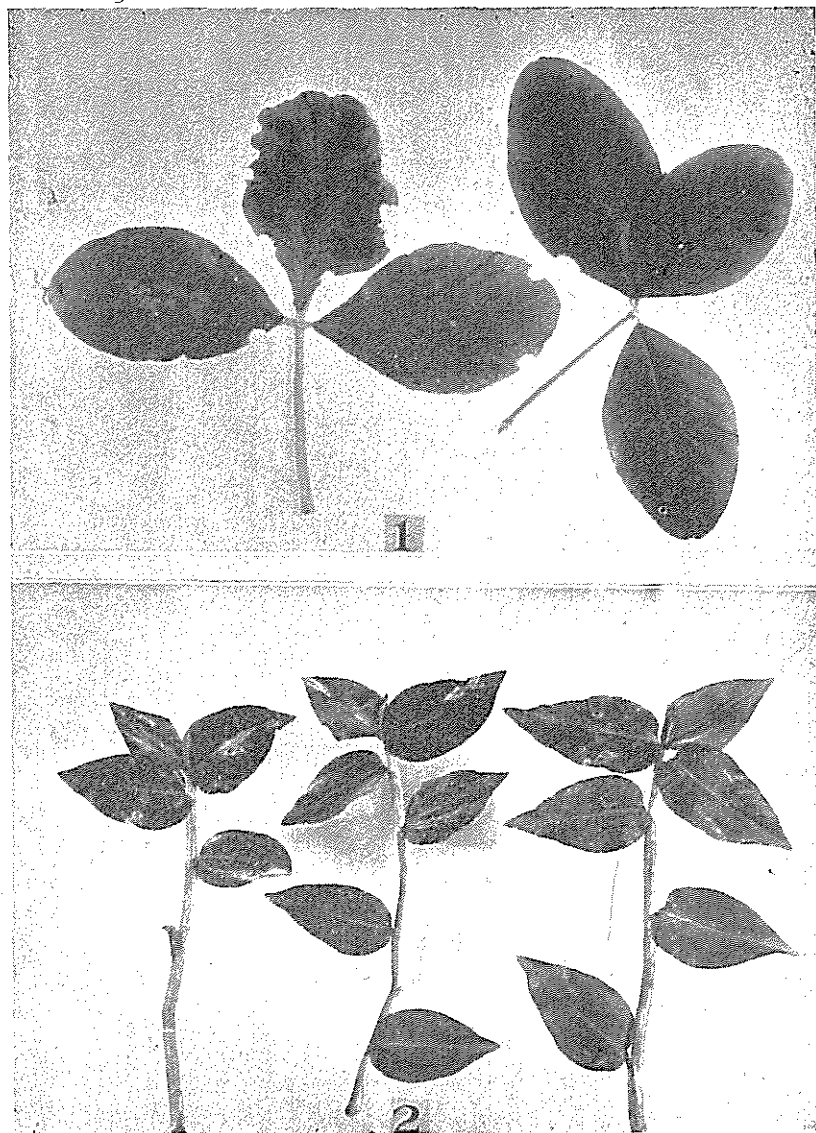
Figure 9.—Mosaic leaves of *Sida carpinifolia*.

Figure 10.—Mosaic leaf of *Andenoropium gossypifolium*.

Figure 11.—Mosaic leaf of *Ipomoea nil*.

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PLATE XV.



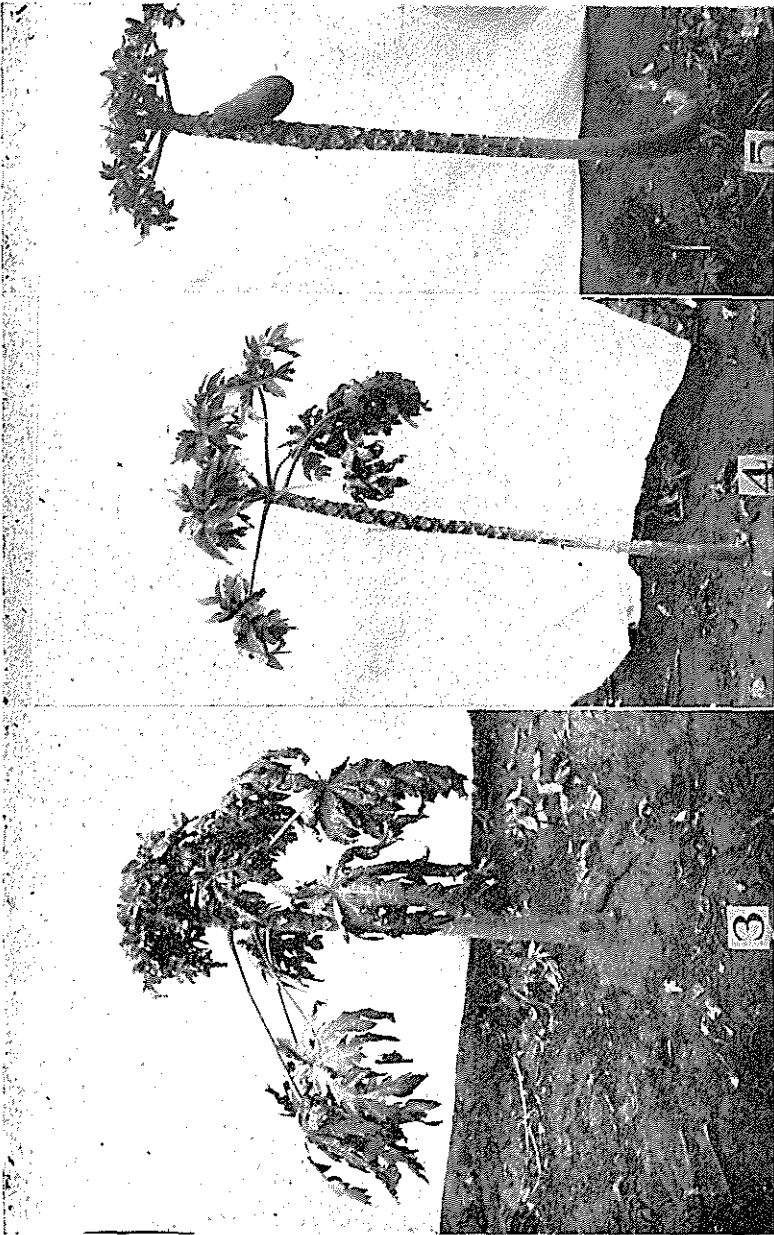


PLATE XVII.

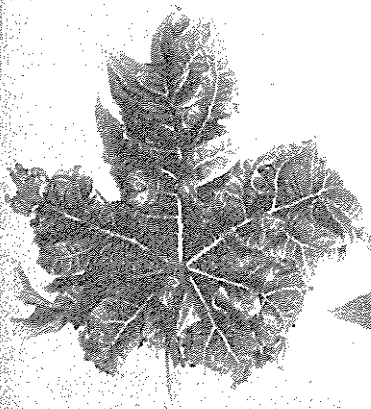
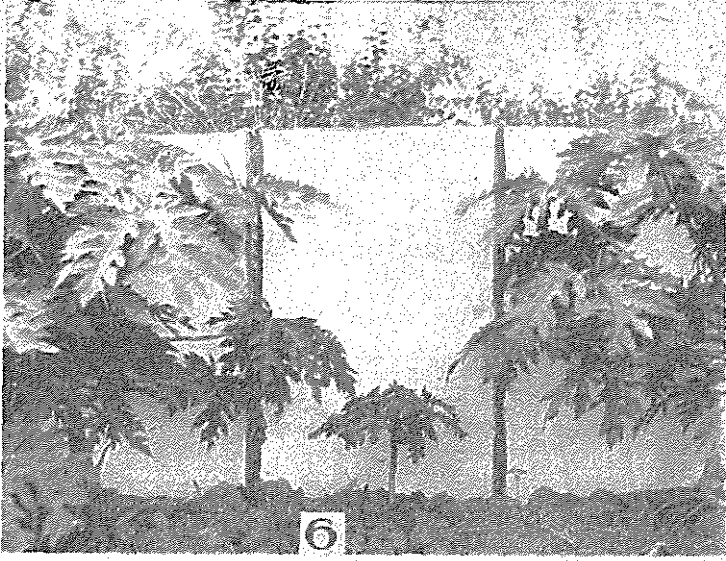


PLATE XVIII.

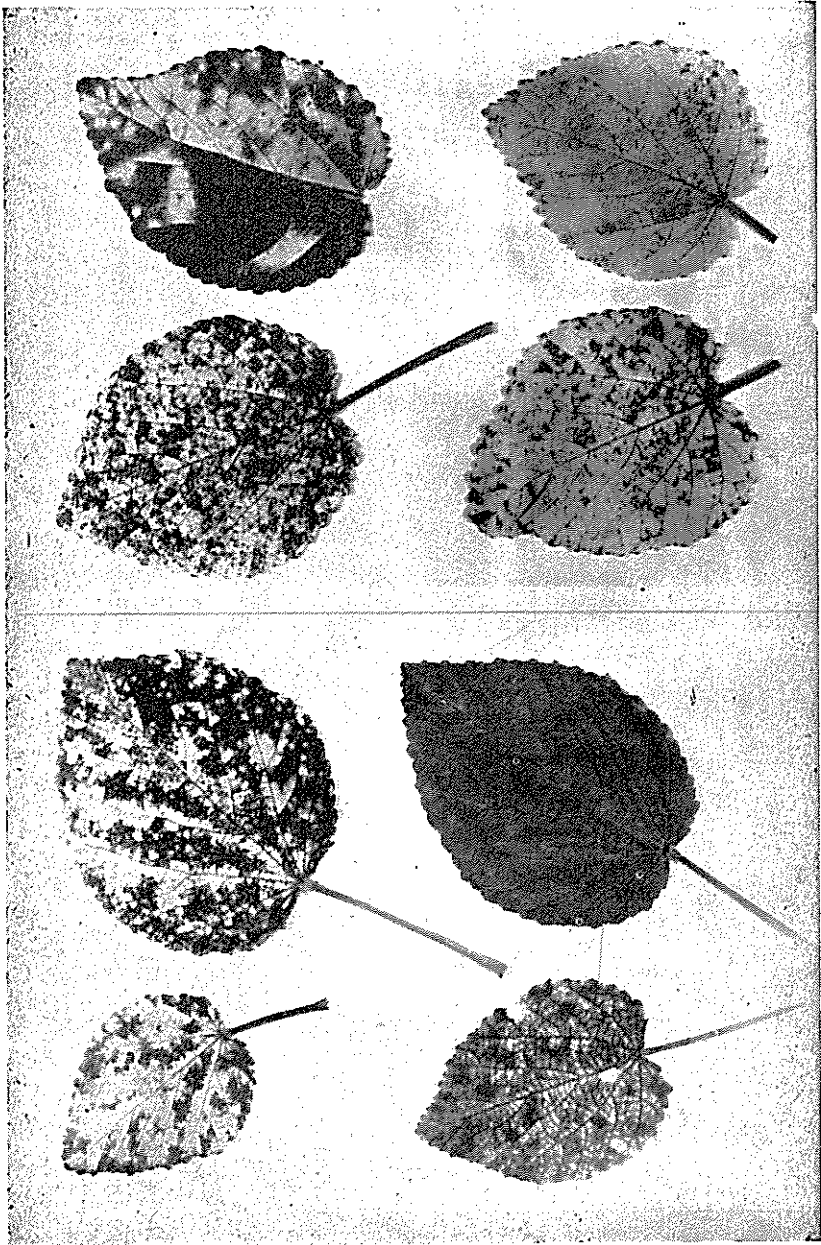
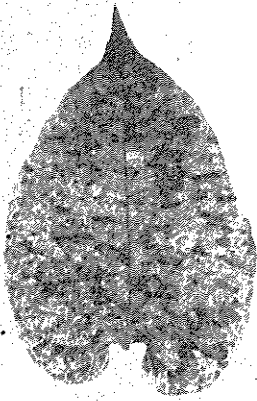


PLATE XIX.



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