CABBAGE MOSAIC VIRUS FOUND IN IMPORTED CABBAGE HEADS[1]

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A number of cabbage heads from a carload of United States cabbage were received at this Station in the spring of 1961. The outer leaves of these heads were black and internal black spotting was present in some of them when they were cut. This condition made them unsightly for sale and several were unfit for table use because of the internal injury. I did some routine virus tests on a sample of these diseased heads and found that cabbage mosaic virus was present. These tests are described together with the symptoms resulting on the test plants and a note on the importance of the finding in relation to the spread of this virus.

About 20 lesions were removed from one of the diseased outer leaves of one of the heads and ground in a mortar with 10 drops of water, This extracted juice was rubbed on 2 leaves of each of 3 young rape seedlings previously dusted with carborundum. About 2 weeks later, a severe systemic mottle developed on the leaves of one of the inoculated plants (Fig. 1A). This rape plant provided inoculum for further virus tests.

Infective juice from a leaf of the rape was rubbed on leaves of each of 3 healthy seedlings of rape, cabbage, tobacco, and Nicotiana glutinosa L., as previously described for cabbage. All of the inoculated plants became infected. Systemic mottle symptoms developed on rape, cabbage, and N. glutinosa (Figs. 1A, B, and C), and small, dark, local lesions appeared on the inoculated leaves of tobacco. These results indicated cabbage mosaic virus (1) but further transmission tests were made with aphids.

Cabbage mosaic virus is transmitted superficially on the stylets of aphids (nonpersistent) (I) and does not move within the insect's body as do the persistent viruses. I made tests with green peach aphids (Myzus persicae (Sulz.)) to determine whether or not this virus was of the persistent or nonpersistent type. Large virus-free aphids reared on health rape plants were placed on an excised infected rape leaf for 48 hours. Afterwards, 5 aphids were transferred to each of 3 rape and 3 cabbage seedlings and left for a further 48 hours. Other aphids made probes lasting less than a minute into an infected leaf and 5 of these were placed on each of 3 other healthy seedlings of rape and cabbage.

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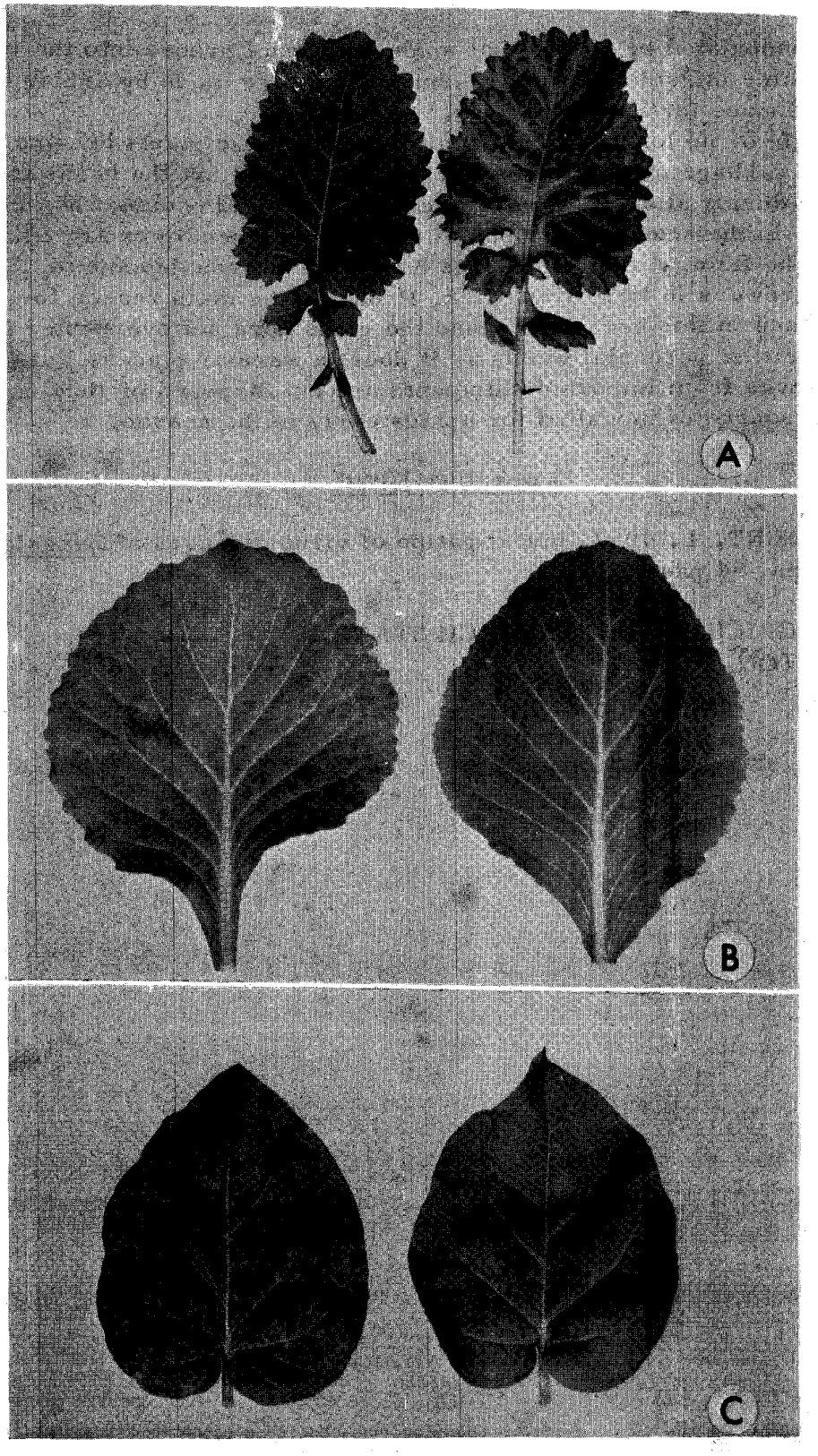

Fig. 1. A. Rape leaf at right infected with cabbage mosaic virus. B. Cabbage leaf at left infected with cabbage mosaic virus. C. Nicotiana glutinosa L. leaf at left infected with cabbage mosaic virus.

All plants inoculated by aphids that made only brief probes into the virus source become infected, but no transmissions were made by aphids that fed on the source for longer periods.

Little or no loss in yield occurs when cabbage plants became infected with cabbage mosaic virus late in the season, but the heads may be affected during storage, The greatest loss in yield occurs when infection takes place in the seed bed or soon after the young seedlings are transplanted in the field. As yet this virus has not been troublesome to vegetable growers in New Brunswick. Probably the main reason for its nonprevalcnce in this area is because the virus does not overwinter in garden debris or perennial weeds as it does in warmer places. But, if infected leaves from imported shipments are not disposed of they could serve as a source of inoculum for aphids early in the season.

Literature Cited

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