

A NOTE ON MOSAIC DISEASE OF SUGARCANE IN BANGLADESH

H. U. Ahmed, M. H. Rahman and M. A. Khan

Sugarcane Research Institute, Ishurdi, Pabna,
Bangladesh.

Mosaic was first reported as a disease of sugarcane by Musschenbroek in Java in the year 1892. Since then the disease was recorded in 71 cane-growing countries of the world. Although recorded in large number of countries, serious crop damage due to mosaic was reported only in Puerto Rico, Cuba and Louisiana (Martin et al, 1961). In most of the countries the common green type mosaic was prevalent.

Two distinct types of mosaic infections were reported. They are (1) the common, "mild" or "green" type and (2) the "severe" or "yellow" type. Economically the severe or yellow type of infection is important. In this case the affected plants show leaf yellowing and severe stunting. The other type of infection known as mild or green shows the symptoms like chlorotic or light coloured, elongated, irregular streaks on the leaves surrounded by normal green areas. This green type infection, so far reported, does not affect the crop very much. Edgerton (1955) reported that the mild or green mosaic was more virulent and on susceptible varieties spread with extreme rapidity. On the other hand, severe or yellow mosaic was more destructive to the plants when affected, but the spread of infection in the field was slow. He studied in detail the relationship between green or yellow type infection and the strain of the virus through artificial inoculation on different varieties and found that the strain for these two types of symptoms might necessarily be different. The same strain that produced green mosaic might produce yellow mosaic on other varieties. He further stated that the variations in symptom expressions were mainly due to variety and environment. So far 13 strains of the virus were identified (Koike, 1976) and they are denoted by A, B, C, D, E, F, G, H, I, J, K, L and M.

In Bangladesh, no report is available when the disease was first detected, but Ahmed et al. (1976) recorded the disease in the year 1974. Mosaic was noticed in all cane-growing areas of the country and most of the varieties were found to be affected by the disease. Both green and yellow types of infections were observed. The most common and widely spread mosaic is the mild or green type. In this case, the infected plants did not show any outward visible symptom, apparently both healthy and diseased plants showed the similar growth and tillering. But on close observation to the leaves, the symptom of mosaic could be detected on affected plants. On the other hand, the severe or yellow type of infection occurred seldomly and so far such symptom expressions were noted on three varieties namely Bo 67, Bo 70 and Isd 5/55. This type of infection is not widespread, but found only in few plots. In case of yellow type infection, the affected plants could easily be identified through its visual symptom like severe stunting and yellowing of leaves.

A preliminary survey on the occurrence of mosaic was conducted in the farm of the Sugarcane Research Institute and a total of 229 varieties were observed. Of them, 148 varieties showed mosaic symptom while 81 varieties showed no symptom of the disease.

Under natural field conditions mosaic could be seen in all the months of the year. The growing settlings of November planting cane show the symptoms at the end of February and as the plants grow further, the symptom expressions were clear and definite. In the months of May-June, pronounced and very clear symptoms were easily observed. During this time leaf yellowing and stunting growth were also noticed.

Seed materials are the main source of new infection. Whether yellow or green mosaic, the use of affected setts generally produce diseased settlings. In case of seed materials from yellow mosaic affected plants, the germinated settlings show thin and stunted growth, while seed materials from green mosaic affected plants, the germination and growth were similar to the healthy plants. But on close observations, mosaic symptoms could be seen on the leaves. Nakata and Hidaka (1975) reported that in Japan mosaic was spread mainly through planting diseased setts. In addition to the seed materials, insect vectors like aphids were found to be responsible for the spread of mosaic (David et al., 1972; Ohtsu and Manabe, 1974; Bhargava et al., 1978). Several weeds and some members of the grass family were also reported to be the alternative hosts of mosaic virus (Anzalone, 1965; Nolla, 1965; Singh, 1976). Not much work has been done in this line in our country. However, studies on varietal screening, virus strain position in Bangladesh, possible transmission of mosaic by insect vectors and also on the alternative hosts will be taken up soon. The future programmes also include to establish a mosaic field-nursery in order to screen the sugarcane clones under natural field conditions.

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