Surveys for Peanut Stripe Virus in East and Southeast Asia

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Peanut stripe virus (PStV) disease of groundnut was first reported in the USA in 1984, after it came into the country in seed from the People's Republic of China. The occurrence of PStV in the People's Republic of China was thus indicated, and a peanut mild mottle virus (PMMV) reported from China in 1983 was subsequently shown to be a strain of PStV. Groundnut mosaic virus (GMV), reported from Malaysia in 1972, produces symptoms in groundnut similar to those of PStV, and has a similar host range, but unlike PStV it is serologicaly related to PMV. However, this should be confirmed using enzyme-linked immunosorbent assay (ELISA), because the original investigations used rather insensitive serological methods. Peanut chlorotic ring mottle virus (PCRMV), reported in 1985 and 1986 from Thailand and Indonesia, has a striking resemblance to PStV in host range and in serological relationships, and can be regarded as a strain of PStV.

It was thought likely that PStV could be present in other countries of East and Southeast Asia in addition to China. Thus ICRISAT proposed surveys in the region to determine the occurrence and distribution of PStV. A survey was conducted in 1984 in Thailand, the Philippines, and Indonesia, with financial assistance provided by the USA Peanut CRSP. Samples collected in each country were processed by the double antibody sandwich form of ELISA (DAS-ELISA). Occurrence of PStV was confirmed in all the countries surveyed, although the ELISA test procedure used did not permit determination of serological relationships of the various PStV isolates processed during the surveys.

In 1986, a simple indirect ELISA test procedure (direct antigen coating, or DAC) suitable for the detection and determination of serological relationships of viruses in surveys was developed at ICRISAT. Surveys were undertaken in Indonesia in 1986, in cooperation with scientists working in the ACIAR project on groundnut diseases, and the samples were tested by DAC-ELISA. The presence of PStV was confirmed in

several locations in Indonesia. It is apparent from the surveys conducted so far that PStV is economically important in Indonesia and in several other groundnut-growing countries in East and Southeast Asia.

PStV has been recorded in South Asia (Prasada Rao et al., 1988). We have surveyed groundnut crops in several locations in India and further disease surveys are proposed to cover Pakistan, Bangladesh, Nepal, Burma, and Sri Lanka. Since PStV is seed-transmitted, care should be taken to avoid spreading this disease in infected seed to countries where PStV is currently not known to occur.

Bibliography

Prasada Rao, R.D.V.J., Reddy, A.S., and Chakravarthy, S.K. 1988. Survey for peanut stripe virus in India. Indian Journal of Plant Protection, 16: 99-102.