

## DETERMINING THE OCCURRENCE AND DISTRIBUTION OF VIRUSES CAUSING DISEASES ON PUMPKIN FOR DEVELOPING EFFECTIVE MANAGEMENT STRATEGIES

Dr. Fatema Begum

Professor, Dept. of Plant Pathology, Sher-e-Bangla Agricultural University, Dhaka, Bangladesh

### Abstract

Pumpkin (*Cucurbita moschata*) belongs to the family Cucurbitaceae, is an important crop in the tropical and subtropical regions of the world. Due to high content of vitamin A, it is very nutritious and can play a vital role in meeting the vegetable shortage and nutritional problems. Diseases caused by viruses have a negative effect on the yield of pumpkin and other cucurbit crops. A survey was conducted to collect virus infected leaf samples of pumpkin to find the occurrence and distribution of viral diseases of pumpkin from three districts of Bangladesh. A field experiment was also conducted to determine specific symptom (s) associated with *Cucumber mosaic virus* CMV of pumpkin to aid visual diagnosis and serological detection and to find suitable management strategies for pumpkin infecting CMV diseases. The experiment was conducted during October'2017 to April'2018. The experiment was laid out in RCBD with three replications in the field. The seedlings with two cotyledons were inoculated with CMV and then transplanted in main field for management this virus. During survey, ten (10) characteristics symptoms were recorded as indicator of virus infection through visual observation. Among these symptoms, four symptoms showed positive to serological test by using CMV antiserum. By observing color of ELISA test, it was concluded that mosaic, yellow mosaic, chlorosis and hardy leaves symptoms showed positive to CMV. In field management experiment, CMV incidence and severity both showed the lowest in treatments T<sub>1</sub> (Inter crop coriander) which was 21.10% and 11.11%, respectively whereas disease incidence (%) and disease severity (%) both were maximum in T<sub>6</sub> (Control) and which were 70.84(%) and 26.67(%) respectively. In case of growth and yield attributes, there were significant variations found in all attributes. Thus, in this study the effective management was intercropping by coriander. A negative relation between CMV disease severity (%) and yield (in kg) per treatment indicated that with the increase of disease severity (%), yield of pumpkin decreased. On the contrary, positive relation between CMV disease severity (%) with aphid population (no.) which indicated that with the increase of aphid population (no.), infection rate is increased. Inoculated CMV was identified in pumpkin leaves by visual observation and six (6) major categories of viruses symptoms were found in field viz. mosaic, yellow mosaic, fern leaf, chlorotic spot, leaf distortion and hardy leaves by visual observation. Among them, in serological test, barrier crop maize, yellow trap, chemical Malathion 57 EC and control treatments of pumpkin were infected with CMV which symptoms categories were mosaic, yellow mosaic, leaf hardening, curling and chlorosis shown positive during serological test by using CMV antiserum.

**Keywords:** occurrence, distribution, identification, serology, cmv, pumpkin, aphid population, management strategy