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HOST RANGE AND SYMPTOMATOLOGY BASED APPROACH ON MUNG BEAN MOSAIC VIRUS (MBMV)

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ABSTRACT

The host range and symptomatology of M.B.M.V. on wild and semi cultivated crops. It has been estimated that various macroscopic and microscopic disease symptoms must originate biochemical abnormalities in plants. The experimental finding reveals that MBMV shows visible disease symptoms with only few limited plants and causes great damage in crop yield.

KEY WORDS : *host range and symptomatology , parasitic in nature.*

INTRODUCTION

plant viruses are known long before discovery of bacteria. The first scientific prove of the viral disease in plants was provided by a Russian botanist Iwanowski, 1892 and was confirm in 1898 by Beijerinck. Viruses are ultramicroscopic and have ability to cause diseases in living organisms. All viruses are parasitic in nature and cause great disorder in metabolic properties of host. Most of the viruses are recognized and named on the basis of symptoms.

Some of the common morphological disease symptoms of the viruses are chlorosis, necrosis, vein cleaning, vein banding, ring spot, mottling stunting , leaf roll, leaf curl, phylloidy and mosaic etc. All the viruses are infectious and transmissible. These are transmitted by sap inoculation, grafting, by soil, seeds, pollen grains, roots ,weeds and suitable vector like aphids, mosquitoes, nematodes and fungi. The MBMV is transmitted by cell sap and aphids.

MATERIAL AND METHODS:

The host plant for research work is taken to be mung bean (Vigna radiata L. wilczek). The cultivated variety of mung bean is taken to be pant mung – 1. The inoculums virus is mung bean mosaic virus (MBMV). The seeds were obtained from America certified seed company, Faizabad (U.P.) India. The plants were grown in clay pots of the size 30 cm containing mixture of sterilized sand-loam and compost (1:1:2) and were watered uniformly and regularly. Before sowing seeds were treated with 0.1 % Hgcl2 for 2 minutes.

After seedling emerged, daily observations were made to note the development of typical symptoms of mung bean mosaic virus. The inoculums were prepared by macerating the leaf tissue shaving distinct symptoms and are sterilized with 0.05 M phosphate buffer. The plant juice was passes through muslin cloth. Now filtrate was used as inoculums to test plants of our locality.

RESULT AND DISCUSSION:

To study the host range and symptomatology of the virus MBMV, attempts were made to recover the virus from inoculated plants. The viruses transmitted by sap inoculation to mung bean are ring spot virus, pea mottle virus (Johnson), clover mosaic virus (Pratt), red clover necrosis virus (Zaumeyer and Goth) , yellow dot virus (Thomas), mosaic of cowpea (Nariani and Kandaswamy), urd mosaic (Shahare et al.),

southern bean mosaic virus (Lamptey and Hamilton), cucumber mosaic (Seth and Nath), black gram mosaic (Srivastava et al.), arhar mosaic virus (Singh and mall) and alfa – alfa mosaic virus (Zaumeyer and Patino) etc.

The visible disease symptoms produced by mung bean mosaic virus (MBMV) in different host plants and the plants which don not shows infection are listed below.

Table-1: List of plant species showing visible symptoms due to MBMV

- *Pisum sativum L. (PEA)*
- *Sesbania sesban L.(JAIT)*
- *Tephrosia hamiltonii L.(GOHARU)*
- *Vigna mungo L.(URD BEAN)*
- *Vigna radiate L.(MUNG BEAN)*
- *Vigna sinensis L.(COWPEA)*
- *Crotalaria juncea (SUNN HEMP)*
- *Crotalaria sericea (SANAI)*
- *Cassia occidentalis L.(COFFEE SENNA)*
- *Cassia tora (SICKLE SENNA)*
- *Cajanus cajan L.(PIGEON PEA)*
- *Melilotus indica L.(SWEET CLOVER)*

Table-2: List of plant species tested for host range studies with negative result.

- *Ageratum conyzoides L.(NILAM)*
- *Dahlia pinnata (DAHLIA)*
- *Helianthus annus L.(SUNFLOWER)*
- *Tagetus eracta L.(MARIGOLD)*
- *Brassica compestris L. (SARSON)*
- *Brassica oleracea L. (CAULIFLOWER)*
- *Brassica juncea L. (RAI)*
- *Raphanus sativus L.(MULI)*
- *Cucumis melo L.(KHARBHOOJA)*
- *Cucumis sativus L. (KHIRA)*
- *Cucurbita maxima Buch. (KADDU)*
- *Lageneria vulgaris (BOTTLE GUARD)*
- *Luffa acutangula L. (TORAI)*
- *Ricinus communis L. (ARANDI)*
- *Arachis hypogeal L. (GROUNDNUT)*
- *Cicer arietinum L. (GRAM)*
- *Dolichos lablab L. (SEM)*
- *Lathyrus odoratus L. (SWEET PEA)*
- *Lathyrus sativus L.(KHESARI)*
- *Lens esculenta Moench. (MASUR)*
- *Trifolium alexandrium L. (BERSEEM)*
- *Vicia faba L. (BAKLA)*
- *Abelmoschus esculentus L.(BHINDI)*
- *Hibiscus cannabinus L. (PATSAN)*
- *Argemon maxicana L. (PILI KATELI)*
- *Papaver rhoea L. (GARDEN POPPY)*

- *Sesamum indicum L. (TIL)*
- *Rumex dentatus L. (JANGALI PALAK)*
- *Datura metal L.(DHATURA)*
- *Datura stramonium L.(JIMSON WEED)*
- *Capsicum annum L.(CHILLI)*
- *Lycopersicum esculentus mill.(TOMATO)*
- *Nicotiana tabacum L. (TOBACCO)*
- *Petunia hybrid vilm (PETUNIA)*
- *Solanum melongena L.(BRINJAL)*
- *Solanum nigrum L. (MAKOI)*
- *Coriendrum sativum L. (DHANIYA)*
- *Amaranthus spinosus L. (KATELI CHAULI)*
- *Cannabis sativa L. (BHANG)*
- *Oscimumsanctum L. (TULSI)*
- *Cleome viscose L.(HUL-HUL)*
- *Stelaria media Villard. (WHEAT WEED)*
- *Avena sativa L.(OAT)*
- *Hordeum vulgare L.(BARLEY)*
- *Triticum vulgare Vill. (WHEAT)*
- *Zea mays L. (MAIZE)*

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