

INSECT VECTOR POPULATIONS AND VIRUS DISEASE INCIDENCE OF TOMATO AND CHILLI IN IM3 AND DL3 ZONES UNDER CONVENTIONAL AND IPM PRACTICES

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This study was conducted to determine the effects of insect vector populations and virus disease incidences of tomato and chilli grown in two agro-ecological zones namely IM3 (Dodangolla) and DL3 (Killinochchi) under conventional and IPM management practices. Chilli (variety MI Green) and tomato (variety Thilina) were grown under four treatments. Percentage of plants showing virus-like symptoms, deformed leaves and healthy appearance were recorded fortnightly at four crop developmental stages and leaf samples were collected. Populations of whiteflies, aphids, leafhoppers and thrips were estimated. Plant and insect DNA were extracted by CTAB protocol and subjected to PCR using specific primers to confirm the presence of begomoviruses in plants and insect vectors. Percentage chilli plants showing virus-like symptoms were significantly influenced by the interaction effects of experimental location x treatment ($p < 0.011$) and location x crop developmental stage ($p < 0.0001$). Percentages of plants with deformed leaves and healthy-looking plants had a significant influence by the interaction effects of location x treatment x crop developmental stage ($p < 0.0001$). Incidence of virus infected and deformed tomato plants significantly varied due to interaction effect of location x crop developmental stage ($p < 0.001$). Percentage virus-suspected tomato plants significantly differed due to the interaction effect of location x treatment ($p < 0.019$). Healthy tomato plant percentage was significantly influenced by the interaction effects of crop developmental stage x treatment ($p < 0.03$) and of location x crop growth stage ($p < 0.0001$). Vector populations did not differ significantly between treatments or locations. PCR confirmed the presence of begomoviruses in chilli and tomato plants with deformed leaves and in aphids.

Key words: Begomovirus, Chilli, Insect vectors, PCR, Tomato