

“Comparative Efficiency of Whitefly *Bemisia tabaci* (G) genotype”

Archana Anokhe*, S. Subramanian and Bikash Mandal

Division of Entomology, IARI, New Delhi 110012
E-mail: *anokhearchana@gmail.com

Abstract—Whitefly, *Bemisia tabaci* has become a global pest owing to its polyphagous pest status and as a vector of more than 200 plant viruses, specifically belonging to genus Begomovirus. As per the current understanding the pest is regarded as a species complex of 34 genetic groups which differ in their virus-transmission capabilities, insecticide resistance and esterase banding patterns. As very little information is available on virus transmission abilities and enzyme activity of most predominant Asian genotype i.e. Asia I and AsiaII-1 of *B. tabaci*, the present study was conducted to find out differences if any in the transmission abilities with respect to Tomato leaf curl New Delhi virus (ToLCNDV) and enzyme activity of both the genotype. Investigations have been carried out under controlled conditions in Insect Proof Climate Control (IPCC) Chamber, Indian Agricultural Research Institute, New Delhi, India. Results have revealed that Asia I had significantly higher transmission efficiencies of i.e. 3.33 ± 0.32 and 7.33 ± 0.32 as compared to Asia II-1, when 1 and 5 whiteflies per plant were inoculated. It was observed that a minimum of 15 whiteflies were required to achieve 100 % transmission efficiency. At 120 min of AAP, Asia I had shown significantly higher transmission efficiency (2.92 ± 0.04) than Asia II-1 (2.88 ± 0.04). It was also observed that both the genotypes required a minimum AAP of 240 min and IAP of 180 min for 100 % transmission efficiency. From enzyme assay study it was found that Asia I having highest lipase as well as esterase activity i.e. 6.403 ± 1.1 , 14.926 ± 0.64 $\mu\text{mol}/\mu\text{l}/\text{min}$ than Asia III where it was found 6.185 ± 0.39 and 3.011 ± 0.246 $\mu\text{mol}/\mu\text{l}/\text{min}$ respectively. Overall, the available data suggest that Asia I is more efficient than Asia II-1 in transmission of ToLCNDV in tomato as well as utilising the substrate for respective enzyme.