Influence of Leaf Vein Morphology in Okra Genotypes (Malvaceae) on the Oviposition of the Leafhopper species Amrasca biguttula (Hemiptera: Cicadellidae)

LOKESH & RAM SINGH

Received: 2004-10-11/2005-05-19 Accepted: 2005-05-23

Eight genotypes of okra viz., three resistant (HRB 128-1-1, HRB 118-2-1 and HRB 105-2-2(GS)), two moderately resistant (HRB 108-2-1 and ST 2), two susceptible (HRB 107-4-1 and HRB 121-1-1) to leafhopper, Amrasca biguttula (Ishida 1913) and one cultivated variety (Varsha Uphar) were included to study the influence of leaf vein morphology on the oviposition behaviour of this pest insect. The resistant genotypes harboured significantly (p < 0.05) less leafhopper nymphs and indicated lower visual injuries than the susceptible genotypes. Number of eggs laid per leaf was less in the resistant genotypes (156.8–174.4) than that in susceptible ones (256.0–280.4), thereby, indicating ovipositional antixenosis. Among the leaf veins (main, lateral and sub veins), lateral veins received maximum number of eggs, except, in genotypes HRB 118-2-1 and HRB 121-1-1, in which subveins received maximum number of leafhopper eggs. The impact of trichome density on main vein (r = –0.80) and lateral veins (r = –0.93) in relation to oviposition was negative and significant. Similarly, trichome length on lateral veins (r = –0.77) and sub veins (r = –0.88) also showed a negative and significant correlation with oviposition of leafhopper. Except the thickness of sub veins (r = 0.82), which showed a positive and significant correlation with oviposition, the influence of length and thickness of different category of leaf veins was non-significant.

Keywords: Amrasca biguttula (Ishida 1913) – Abelmoschus esculentus (L 1737) Moench – antixenosis – trichome density – trichome length – vein length – vein thickness

1 Introduction

Okra (Abelmoschus esculentus (L 1737) Moench) belonging to family Malvaceae, is cultivated as an important summer and rain season vegetable crop for its tender green fruits in Asia and Africa. Among many production constraints of this crop, attack by the leafhopper Amrasca biguttula (Ishida 1913) is the most serious not only in India [SINGH & AGARWAL 1988a] but also in Pakistan [MAHMOOD et al 1990], Bangladesh [ALI et al 1993], Thailand [MABBETT et al 1984], and other Southeast Asian countries [ATWAL 1976]. Nymphs and adults of this insect cause damage by sucking the cell sap from the leaves which results in characteristic phytoxaemia called “hopperburn” [UTHAMASAMY 1985]. This leads to considerable yield losses.