Resource Management and Biodiversity Conservation to Achieve Sustainable Development Goals

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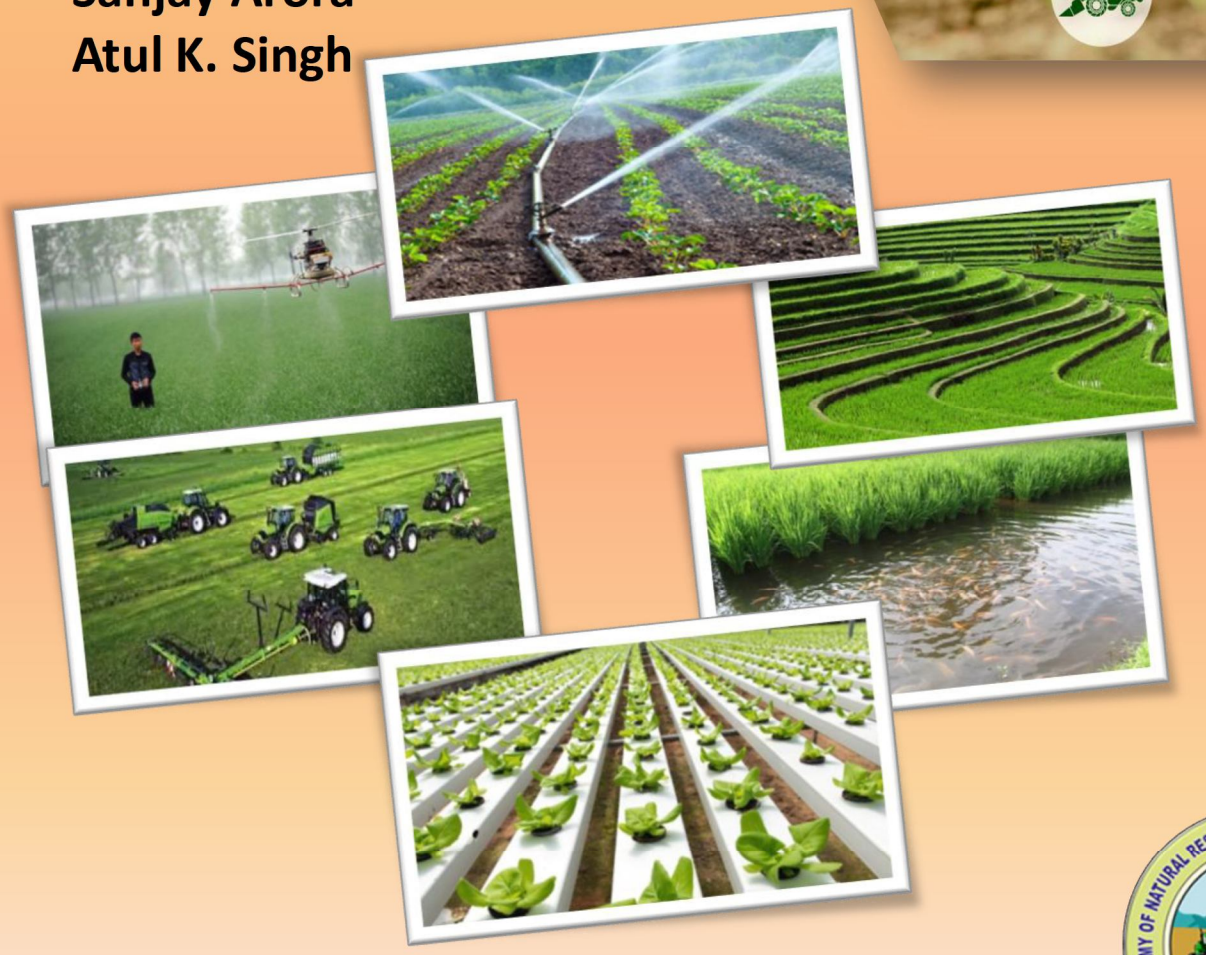

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Bottom-up effect of difference genotypes of ber, *Ziziphus mauritiana* against bruit borer, *Meridarchis scyrodes* Meyrick

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Abstract

Differences in genotypes of ber plant characters May effects on insect-plant herbivore interactions and variation in genotypes traits is responsible for modify the bottom-up effects. We evaluated the performance of different genotypes of *Z. mauritiana* against fruit borer, *Meridarchis scyrodes* Meyrick under field conditions in the semi-arid region of India. On the basis of pooled data, the ber genotypes under study indicated significantly low incidence of fruit borer in Safeda (13.27%) followed Tikadi (14.01%). Significantly greater incidence of fruit borer was registered in Sanaur-5, Chhuhara and Sanaur-2 with a magnitude of 75.09, 72.90 and 71.78 %, respectively. Basis of fruit borer, *M. scyrodes* incidence; Safeda, Tikadi, Darakhi and Illaichi were considered as resistant; BS-75-1, Gola, Goma Kirti, Seb and Umran were found moderately resistant; Dandan, Mahawali, Jogia, Sukavani, Narma, Reshmi and ZG-3 were found to be susceptible whereas, Banarasi Karaka, Banarasi Pawandi, Chhuhara, Kaithali, Mundia, Sanaur-2 and Sanaur-5 were highly susceptible to fruit fly. The flavinoid content (187.79 mg/100g) was found to be maximum in Illaichi followed by Safeda (179.03 mg/100g) and minimum in Chhuhara (40.68 mg/100g). The tannin content (511.57 mg/100g) was found to be the highest in Safeda followed by Tikadi (502.79 mg/100g) and the lowest in Chhuhara (264.78 mg/100g). Phenols content was highest in Safeda (239.01 mg/100g) followed by Darakhi (234.96 mg/100g) and lowest in Sanaur-5 (119.51 mg/100g) with values significantly higher in resistant and lower in susceptible genotypes. The minimum fruit length (17.18mm) in Illaichi, fruit width (18.81mm) and pulp: stone ratio (2.12) in Tikadi and pericarp thickness (0.25mm) in Sanur-5 were found but maximum fruit length (43.17mm) in Umran, fruit width (33.4mm) in Dandan, pulp thickness (1.16mm) in Safeda and pulp: stone ratio (27.13) in Mundia genotypes, respectively. The phenols (0.96), Tannins (0.95), flavonoid (0.95) contents and pericarp thickness (0.88) had significant negative correlations with percent fruit infestation of fruit borer, *M. Scyrodes*. The fruit length (0.50) and pulp: stone ratio (0.77) showed significant positive correlations with percent fruit infestation of fruit borer, *M. scyrodes* and flavonoid contents explained 91.40% of the total variation in fruit borer, *M. scyrodes* infestation. Two principal components (PCs) were extracted which explained the cumulative variation of 88.48 %. PC1 explained 64.34 % of the variation while PC2 explained 24.14 % of variation. In conclusion, growers can adopt the potential resistant genotype (Safeda) of *Z. mauritiana* with minimal financial investment to obtain higher yields.

Keywords: *Meridarchis scyrodes, Z. mauritiana, genotypes, bottom-up effect, plant-insect interactions*