SCREENING FOR HOST PLANT RESISTANCE TO
HELICOVERPA ARMIGERA (LEPIDOPTERA: NOCTUIDAE)
IN SELECTED CHICKPEA (CICER AURICENTINUM L)
GENOTYPES IN KENYA.

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ABSTRACT

Helicoverpa armigera (pod borer) is a major pest of chickpea (Cicer
auricentinum) in many areas of the world. In Kenya, it causes up to 80% yield
losses of the crop. The methods of control include application of pesticides,
Bacillus thuringiensis (Bt), Helicoverpa Nuclear Polyhedrosis Virus (HNPV) and
cultural methods. Host plant resistance can be an important component of
managing this pest. To increase the effectiveness of screening for resistance, a
combination of techniques such as direct field screening and feeding preference
bioassays need to be evaluated. The research evaluated 30 chickpea genotypes for
resistance to H. armigera. The study consisted of two experiments. In experiment
1, field screening, was conducted in a RCBD with three replicates. The results
showed that there was significant variation in Helicoverpa tolerance among the
genotypes. Genotypes EC583318, EC583250 and EC583260 were least infested
by the pod borers while ICC07105 and ICC4973 recorded the highest number of
larval populations. The percent pod damage ranged from 9.15% in EC583264 to
25.4% in ICC3137. EC583260 was found to be low yielding (1051kg/ha). In
experiment 2 a modified leaf feeding bioassay was used to assess the feeding
preference of Helicoverpa among chickpea varieties. Leaf damage weights were
determined after 12 hrs of insect feeding and preference indices (PI) computed.
On the no choice test, EC583250 had a leaf damage weight of 18.16% and
ICC4973 recorded 36.77%. EC583250 had the lowest PI of 1.08 and ICC 3137
had the highest PI of 1.84. Data on larval counts, percent pod damage and percent
leaf damage weights were transformed using exponential transformation,
exp(x+c) and analyzed using ANOVA with the Genstat release 12.1 software;
means were separated using DMRT at P≤0.05. Correlation analysis using StataSE

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