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: CHEMICAL BASIS OF PLANT RESISTANCE OF SOME INBRED LINES OF MAIZE AGAINST CHILO PARTELLUS (SWINHOE)

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Chemical analysis of four out of ninctcen inbred lines of maize scrcened for relative resistance against Chilo partedlus (Swin.) indicated that Na and Fe were more in comparatively resistant inbred lines. Chemical analysis of larval body and larval excreta for macro- and micro-clements was also carried out to provide basis for including these clements in the artificial dict of maize borer.

INTRODUCTION

correlated with borer infestation while
. moisture had positive correlation with borer
| Resistance in plants is not governed by infcstation.
a single mechanism but several physical and The present studies were undertaken to
chemical factors complement onc another to establish relationship belween Chilo partel-
produce it (Agarwal et ai., 1978). Chatlerjt ef ius (Swin.) infestation and biophysical plant
al. (1966) found that the composite cross A characters of ninctecn different inbred lines
x Antigua Group 1 was the least susceptible of maize.
to the attack of Chilo partellus (Swin.) while
the two local varieties, Basi and KT 41, MATERIALS AND METHODS
showed the highest degrce of susceptibility.
Singh ef ai. (1968) did not find any correla- Studies on biochemical resistance of
tion between borer attack and plant height some inbreu lines of maize agaist C.
while Sharma and Chatterji (1972) found a partellus were carried oul at the University
negalive correlation between these two fac- of Agriculturc, Faisalabad. Nincleen inbred
tors. Earlicr in 1971, these authors found lances of maize were sown following Raa-
that N.P.K. were significantly more in sus- domized Complete Block Design (RCBD)
ceptible germ plasm while Si and Fe werc and werc replicated thricc. Borer infestation
more in resistant germ plasm. Subbarao and was recorded at 10 days interval during
Perraju (1976) reported that varictics with growth period of crop. At maturity cob yield
high contents of dry maitcr, silica, K and low per plant, plant height and plant weight of
contents of moisture, N and Na were resis- five randomly selected plants were recorded.
lant against Tryporyza incertulas (Wik.). At tasselling stage, two plants from cach of
Ahmad ef af. (1990) carricd out studics on highly resistant and highly suscepuible vari-
biochemical plant characters contributing ctices were taken at random for chemical
resistance to Chilo partellus (Swin.) in four analysis. Tolal mineral contents were
inbred lines (Pb-7, B-73, A-619, M.O. 17) determined by burning to ash the oven-dricd
and two hybrids (R757 and R786) of maize saniplcs in the muffle furnace at 600°C. For
at Faisalabad. They found that Phosphorus, determining micro- and macro-elemcats,
K and Fe were significantly and negatively wel digestion of plant samples was done