STUDIES ON RICE TUNGRO VIRUS DISEASE WITH SPECIAL REFERENCE TO SOME BIOCHEMICAL CHANGES

ABSTRACT

The leafhoppers, *Nephotettix virescens*, *N. nigropictus* and *Reclia dorsalis* appeared in rice field in June-July, reaching peak in October-November and disappeared from December during 1998 and 1999. The population of *N. virescens*, the most efficient vector of RTV disease was low compared to the *N. nigropictus* but more than *R. dorsalis* in the field.

Out of 26 varieties/accessions tested against RTV and the vector *N. virescens*, Saket-4 was found to be resistant against the tungro disease and Accn. 99016 against *N. virescens*. The variety Madhab was found to be very close to resistant reaction (DI 3.1) against the virus but moderate to the vector.

Total phenol content was reduced up to 11.11 per cent in susceptible TN-1, 7.96 per cent in tolerant IR-50 over healthy and no change was recorded in resistant Saket-4 as a result of RTV infection. In Saket-4, phenol content was higher compared to the other two varieties. Total nitrogen, crude protein, phosphorus, potassium and calcium were reduced as a result of RTV infection in susceptible TN-1 and tolerant IR-50 whereas, no change observed in resistant Saket-4.

Peroxidase activity was high in both the susceptible (up to 11%) and tolerant varieties (up to 9.46%) but negligible increase (up to 3.02%) was observed in the resistant variety. Phenylalanine ammonia lyase activity was high in susceptible (up to 16.09%) and tolerant variety (up to 9.64%) whereas, in resistant variety the change was insignificant (up to 5.87%). Polyphenol oxidase activity was not changed due to RTV infection in any of these varieties. Two isoperoxidase bands were found in healthy TN-1 and Saket-4, in contrast to 3 in the RTV infected above varieties indicating an increase in peroxidase activity.

Application of additional nitrogen masked the tungro disease symptoms, but the loss in terms of grain yield was not compensated in comparison to uninfected healthy TN-1.