

ABSTRACT

Sitophilus oryzae (Coleoptera: Curculionidae) is the main pest that causes damage to sorghum during storage. Rice beetles are also primary pests that can attack whole seeds by eating their carbohydrate content. This research aimed to analyze the resistance of sorghum varieties to *Sitophilus oryzae* and study the relationship between the physical and chemical characteristics of sorghum and its resistance to *Sitophilus oryzae*. This research used Non Factorial Completely Randomized Design (CRD) method with 3 replications using sorghum varieties such as Kawali, Numbu, Super 1, Super 2, Bioguma 2, Bioguma 3, Suri 3, Suri 4, Soper 6 and Soper 9. Observational data were analyzed using the analysis of variance from the comparison of the treatment averages obtained through *Duncan's Multiple Range Test* (DRMT) at the level of 0.05 and also the correlation analysis to measure the relationship strength. The observational parameters consisted of sorghum dimensions, sorghum chemical characteristics, number of F1 (Filial 1), median development time, susceptibility index, sorghum damage and weight loss percentage. The results showed that sorghum varieties had a source of antixenosis resistance in the form of sorghum dimensional characteristics. Sorghum with a thinner size was more resistant as the adult imago of *S. oryzae* preferred thicker sorghum to lay their eggs. The results of correlation analysis showed a positive correlation among sorghum dimensions, number of F1, yield loss, sorghum weight loss and showed a negative correlation among tannin and phenolic content as well as the median development time. The correlation between these characters indicates that the higher the number of F1s, and weight loss percentage as well as the shorter the median development time of *S. oryzae*, can increase the susceptibility index. Damage to sorghum can affect its susceptibility.

Keywords: *Sorghum damage, Susceptibility index, Sitophilus oryzae, Resistance source*