

EFFECT OF PARTICLE SIZE OF GRAINS AND PULSES ON INFESTATION BY STORED-PRODUCT INSECTS

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Tribolium castaneum, *Rhyzopertha dominica* and *Sitophilus oryzae* are devastating pests of stored rice and other cereals in tropical and sub-tropical countries. Alteration of insect infestation in grain samples having different particle sizes is reported but such information on local rice varieties and pulses is unavailable. Therefore, the objective of this study was to evaluate the degree of infestation by *T. castaneum*, *R. dominica* and *S. oryzae* rice and pulses found in the local market. Experiment design was a Completely Randomized Design with four replicates. The grain types used were *red kekulu*, *red samba*, *kuruluthuda*, *suwandel*, *heenati*, *greengram*, *cowpea* and *blackgram*. From each grain type, samples having following percentages of broken 0%, 10%, 20%, 40%, 60%, and 100% were prepared. Twenty adults of each insect species were introduced into separate 20 g replicate samples of each grain types and allowed for incubation. Introduced adults were removed after two weeks. Every two weeks, the number of adults emerged was counted, their weight recorded and the adults removed. The number of adults emerged and their weight were analysed using a General Linear Model. According to the results of each types of grains, the highest adult emergence for *T. castaneum* was in 100% broken and *S. oryzae* in 10% broken. The progeny emergence in *R. dominica* was not affected by the percentage of broken. Weight gain of tested species was not affected by the particle size. This study reveals that the progeny performance of *T. castaneum* and *S. oryzae* varies with the particle size of the grains. Therefore, minimization of grain damage during milling and other handling processes is recommended to ensure better protection of grains from insect infestation during storage.

Keywords: Particle size, Progeny emergence, *Rhyzopertha dominica*, *Sitophilus oryzae*, *Tribolium castaneum*.