PROXIMATE COMPOSITIONS AND GRAIN WEEVIL (S. ZEAMAIMS MOT.)
RESISTANCE IN STORED MAIZE.

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ABSTRACT
An experiment was conducted at the Department of Crop Science, University of Nigeria, Nsukka to evaluate seventeen maize varieties (Sammaz – 11, 14, 15, 16, 17, 18, 20, 26, 27, 28, 29, 31, 32, 33, 34, 35 and 37) developed at Institute for Agricultural Research (IAR) in collaboration with International Institute for Tropical Agriculture (IITA) and three accessions (ENU-E, NSU-P, and KAG-W) sourced locally. The experiment was laid out in completely randomized design (CRD), with three replications. The result showed there were wide variations in the proximate contents which influenced their susceptibility to S. zeamais. Sammaz – 32 had the least susceptibility index (SI) of 1.79 and was classified as resistant. ENU-E, NSU-P, KAG-W, Sammaz – 11, 14, 15, 16, 20, 26, 27, 28, 29, 31, 34 and 37 were classified as moderately resistant as their SI ranged between 2.6 and 5.0, while Sammaz – 17, 33 and 35 were classified as moderately susceptible with a susceptibility index of between 5.6 and 7.5. Correlation results showed a negative significant correlation ($r = -0.255^*$, $n = 20$, $P < 0.05$) between grain moisture and susceptibility index. On the other hand, a positive significant correlation ($r = 0.278^*$, $n = 20$, $P < 0.05$) was established between susceptibility index and carbohydrate. Other proximate compositions however did not attain any significant correlation status with susceptibility index. Path coefficient analysis revealed that % grain moisture (%$H_2O$) ($-0.4174$) had the highest direct negative effect followed by % fat ($-0.3698$) on susceptibility index (SI). The total correlation of % grain moisture ($-0.255^*$), though low but significant with two opposing positive indirect effects from % fat (0.1298) and % fibre (0.0764), while the total correlation of fat (-0.109) had opposing indirect positive effects from % $H_2O$ (0.1465), % protein (0.1647) and % Ash (0.0714). The correlation studies and path coefficient analysis indicated prospects for the improvement of the maize accessions/varieties through selection of the two traits (percentage grain moisture and percentage fat) for resistance against maize weevil attack.

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