

Title Study on the effects of mixtures of acetone extracts of black pepper (*Piper nigrum* L.) and nutmeg (*Myristica fragrans* Houtt) seeds on the development of *Sitophilus zeamais* Motschulsky (Coleoptera: Curculionidae).

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Abstract

Mixtures of acetone extracts from black pepper (*P. nigrum*) and nutmeg (*M. fragrans*) seeds were evaluated under laboratory conditions for their insecticidal effect on maize weevil (*S. zeamais*) reared on maize kernels. Mixtures of 0.0, 0.1 and 0.2% (v/w) of black pepper extract and 0.0, 1.0, and 2.0% (v/w) of nutmeg extract were incorporated into the diet to obtain nine mixture combinations. The number of F1 progenies and the developmental period were observed, and a developmental index was obtained based on these data. The presence of the extracts in the diet significantly reduced the number of F1 offsprings, prolonged the developmental period and reduced the developmental index. Progenies were still recorded for the diet with a combination of 2.0% nutmeg extract and 0.0% black pepper extract, but progenies were not recorded for all the five replicates. In all other combinations with both black pepper and nutmeg extracts, the presence of progenies was not observed. The results suggest that mixtures of acetone extracts of black pepper and nutmeg seeds have significant effects on the development of *S. zeamais*, and that the acetone extract of black pepper has relatively better insecticidal properties than the nutmeg extract.