

Insecticidal efficacy of Cameroonian neem seed powder against *Sitophilus zeamais* Motsch. and *Callosobruchus maculatus* Fab. as influenced by drying regime

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The problem caused by insect pests to stored products in Africa is still a challenge and the use of botanicals needs to be intensified. Neem products are known for their bioefficacy which vary across geographical locations. Therefore, it seems unwise to extrapolate the results from one region to another.

Cameroonian neem seed powder from pulverized dehusked and sun-dried kernels (DSD), undehusked and sun-dried (USD), dehusked and shade-dried (DRD), and undehusked and shade-dried (URD) kernels were used. Maize grains and cowpea seeds were coated with the neem seed powders in order to evaluate their insecticidal efficacy on *Sitophilus zeamais* and *Callosobruchus maculatus* using parameters like adult mortality, progeny production, grain damage, population increase and persistence.

All neem powders tested at different doses and exposure periods, showed various bioactivities against *S. zeamais* and *C. maculatus*. Within one day of exposure and at the highest dosage (40g/kg) level, 20 %, 7.5%, 6.25% and 2.5% mortality was caused to *S. zeamais* by DRD, USD, URD, and DSD, respectively, and to *C. maculatus*, no mortality was achieved for all drying

regimes. For *C. maculatus*, maximum mortality (40 g/kg, within 6 days) of 34.28%, 30.46%, 23.75% and 22.76% were achieved for DSD, DRD, USD and URD, respectively. For *S. zeamais*, mortality of 100% was caused by DSD and USD (30g/kg) within 14 days. All neem powder inhibited the production of progeny in the beetles, reduced the percentage of seeds damaged and mass losses for maize and cowpea. The persistence experiment showed that for dosage level of 40 g/kg, adult mortality of *S. zeamais* decreased from 60% (after 15 days storage) to 20% (180 days storage) and for *C. maculatus* from 7.75% (15 days storage) to zero (180 days storage).

Sun-drying of neem seeds which results in relative better insecticidal efficacy could help farmers to easily dry their neem seeds in sun. This drying regime could help them avoid health risks, in regard of the fact that during shade-drying, the seeds are attacked by fungi which may be toxic when admixed to food products. Also, in traditional post-harvest system in northern Cameroon, farmers poor in resources could prepare and use neem seed powder for insect control at cheapest cost.