

A study was carried out to assess the effectiveness of a simple solar dryer, built from local materials, to control cowpea bruchids, *Callosobruchus maculatus* (Fabricius) and maize weevils, *Sitophilus zeamais* (Motsch.) in infested cowpea and maize. The effect of the heat generated in the solar dryer on the mortality of the insects, viability of the cowpea and maize seeds and the emergence of F1 progeny of *C. maculatus* and *S. zeamais* were the parameters assessed. The result obtained showed the reliability of the simple, low cost solar dryer in controlling the insects to an appreciable level. Complete (100%) mortality was obtained when the infested cowpea and maize were placed in the solar dryers, for 60 minutes and 120 minutes, respectively. The highest mean percent seed viability of the infested cowpea was 66.4% after being exposed for 120 minutes in the solar dryer and least viability was 48.5%. However, the mean percent seed viability of the infested maize decreased from 85% after 30 minutes of exposure in the solar dryer to 59.0% after 4 hours. The test indicated that exposure of the seed to the heat in the solar dryer reduced viability. The control for both cases gave higher percentage seed viability 73% and 86% for cowpea and maize, respectively. The period of exposure of the infested grains in the solar dryer for one hour or more also effectively reduced the number of F1 progeny that emerged from the stored grains. The result for solar-treated seeds was only effective as post-harvest reduction in weevil injury and may not be viable for planting due to loss in germination. © 2010 International Formulae Group. All rights reserved. Keywords: mortality, viability, F1 progeny, *C. maculatus*, *S. zeamais*