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Effect of solar drying on the biological parameters of the cowpea weevil, *Callosobruchus maculatus* Fab. (Coleoptera-Bruchinae), in Sahelian area.

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ABSTRACT

Objective: Callosobruchus maculatus Fab. (Coleoptera: Bruchinae) is a major pest of cowpea seeds (*Vigna unguiculata* (L.) Walp) in the Sahelian zone. The grain infestation by this insect pest starts in the field at the beginning of fructification of the plant and continues in storage where the damage can be significant if no protective measures are taken. In order to prevent the damage caused by *C. maculatus* in storage of cowpea, farmers commonly expose the seeds and pods to the sun radiations for several days before storing them. Therefore, the aim of this study is to investigate the impact of sun radiation on the egg laying and development of weevils in general and particularly *C. maculatus.*

Methodology and results: To achieve this goal, experiments were conducted to determine the biological parameters of two batches of this pest respectively exposed to sun radiations and in the laboratory environment. The investigated parameters include longevity, fertility, infertility rate, eggs, development time, larval survival rate and emergence rate. This study results indicated that the different biological parameters studied were significantly affected when the insects were reared under sun radiations. In fact, it appears under this study experimental conditions that sun exposure significantly inhibits egg laying, embryonic development and postembryonic development of *C. maculatus* resulting in complete inhibition of the emergence of the offspring.

Conclusion and application of results: Thus, solar drying seems to be an effective method of preventing weevil damage during cowpea storage.

Keywords: Cowpea; *Callosobruchus maculatus*; solar drying; Sahelian area.