

## A Promising Use for Potassium Alum as Controlling Agent Against *Blattella germanica*(L.) (Dictyoptra:Blattellidae)

Elham M. Salama<sup>1\*</sup>, I.A. Ismail<sup>2</sup> and R.S. Abdel-Rahman<sup>2</sup>

<sup>1</sup>Entomology Dept., Faculty of Science, Benha University, P.O. Box 1351, Egypt.

<sup>2</sup>Pests & Plant Protection Dept., National Research Centre, 33<sup>rd</sup> El Buhouth St.  
P. code: 12622, Dokki, Giza, Egypt.

**Abstract:** This is the first study to clearly demonstrate the potential on the use of potassium alum as a friendly-insecticide against *Blattellagermanica*(L.) as an oviparous insects. This German cockroach is in first appendance to American cockroach. In our laboratory, we tested the common potassium alum for controlling *B. germanica* (L.). Starved adult and nymph stages for three days (i.e. deprived from food but have access to water) were left to feed with crashed pellets of potassium alum. Gravid females were only shifted to eat from normal food to potassium alum. The mortality recorded as  $LT_{50}$ , the younger nymph third and fourth instars were died within 6 days after consuming 0.2mg of alum. Non- Gravid and gravid females were quit susceptible and decrease in their survival to high extent with  $LT_{50}$  16 days and 14 days respectively. The wonderful effect was found that the effect of the potassium alum is extending effect to the egg capsules especially if the female started to eat at the beginning of the extrusion no nymphs could be emerged at all. The lipase activity of the female cockroaches that fed upon potassium alum was greatly decreased during her reproductive cycle which greatly reduced the percentage of emergency of nymphs especially if it starts feeding on potassium alum at the day 1 of the reproductive cycle i.e. the egg case start to protrude from the abdomen. These would be a great potential in increasing oocyte resorption with no chance for new offspring to live i.e.decrease the protein content of the oothecae to low level. The results revealed that the female and male need to ingest 1.0 mg, 3.0 mg of potassium alum respectively to induce 100% mortality after 16 days for female and 28 days to male after consuming potassium alum. In all the tested stages only males had a higher  $LT_{50}$  which was found to be 28 days. The potassium alum had to be ingested by the cockroaches to induce mortality. The potential applications of this novel technique will be discussed.

**Keywords:** Environmentally friendly insecticide, potassium alum, *Blattellagermanica*.