

**Identification of storage insect pests of cocoa (*Theobroma cacao* L.)
and use of plant materials for their management**

S I C Silva*

Research Station, Department of Export Agriculture, Matale

Infestation due to storage pests in processed cacao (*Theobroma cacao* L.) beans is very fast and affects drastically the quality and quantity of the product. Insecticides to prevent the post harvest losses during storage are hardly used as cocoa beans are taken to make secondary products viz; chocolates. Plant materials may contain volatile compounds, non-volatile compounds and oils which could be used to kill or repel the insect pests. These plant materials are low cost, biodegradable, safe and environmentally friendly.

This study was conducted under laboratory conditions and used Completely Randomised Design (CRD) with four replicates using leaves of Maduruthala (*Ocimum sanctum*), Heen Pangiri (*Cymbopogon nardus*), Maha Pangiri (*Cymbopogon winterianus*), Citrus sp, Neem (*Azadirachta indica*), Cinnamon (*Cinnamomum verum*), Black Pepper (*Piper nigrum*) and dried roots of Vetiver (*Vetiveria zizanioides*) as treatments. Five grams of dried plant materials were added to each 500g of cocoa bean samples and compared with a control without any plant materials. Undamaged cocoa bean percentages were recorded weekly and the emergence of insect pests during 147 days of the whole stored period was observed.

Araecerus fasciculatus (Coleoptera: Anthribidae), *Ephestia elutella* (Lepidoptera: Pyralidae), *Tribolium* sp. (Coleoptera: Tenebrionidae) and one unidentified Coleopteran insect species were observed in stored cocoa bean samples. Results revealed that cocoa beans can be stored without significant pest damage by adding 1% dried leaves of Maduruthala (*Ocimum sanctum*), Heen Pangiri (*Cymbopogon nardus*), Maha Pangiri (*Cymbopogon winterianus*) and Black Pepper (*Piper nigrum*) up to a period of two weeks. But both Maduruthala (*Ocimum sanctum*) and Black Pepper (*Piper nigrum*) treatments significantly reduced the damage percentage up to two and half months compared to the control and other treatments.

* sadrmt@sltnet.lk

Tel: 066-2231249