

Analysis of quality retentions in cocoa beans exposed to solar heat treatment in cardboard solar heater box

ABSTRACT

The use of heat treatment for the disinfestation of insect pests of stored products has been demonstrated to hold great potential as an ecofriendly alternative technique of choice in the feature grain storage systems. However, the success of this method depends on the application of heat on the commodity at levels that cause maximum mortality on the target population and insignificant effect on commodity quality deterioration. Experiments were conducted to assess the effect of heat treatment in solar heater box on the proximate and mineral composition of cocoa beans over series of exposure times. The result shows that solar heat treatment in cardboard solar heater box at temperatures lethal to stored-product insect pest did not affect any of the quality characteristics of the cocoa beans over the tested periods. The implication of this for the application of the cardboard solar heater box for the disinfestation of insect pests on cocoa beans was discussed.

Keyword: Cocoa beans; Heat treatment; Quality characteristics; Cardboard solar heater box; Free fatty acids; pH