

**EFFECTIVENESS OF BANANA PEELINGS, BEAN HUSKS AND RICE HUSKS ASH
PARTICLE SIZE ON BEAN BRUCHIDS (*Acanthoscelides obtectus*) INFESTATION IN
STORED BEANS (*Phaseolus vulgaris*).**

BY

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**A RESEARCH REPORT SUBMITTED TO THE DEPARTMENT OF BIOLOGY IN
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF
BACHELOR DEGREE IN SCIENCE AND EDUCATION OF BUSITEMA UNIVERSITY.**

DECLARATION

I NGOTOWA EMMA solemnly declare that this is my original work and has never been submitted by any other student for degree or any other award in any University or other institution of higher learning. The information derived from the literature has been duly acknowledged in the text and a list of references provided.

Signature..... Date.....

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APPROVAL

This research project report has been submitted to the Faculty of Science Education, BIOLOGY DEPARTMENT in fulfillment of the requirement for the award of a degree of Bachelor of Science Education of Busitema University 2020 with the approval of my supervisor.

Signature.....Date.....

MADAM NAMUSANA HELLEN

(SUPERVISOR)

DEDICATION

I dedicate this report to my parents Mr. Walimbwa Severio and Mrs.Nabifo Agatha for their entire efforts to support me materially through daring to pay all the necessary school dues throughout my academics, spiritually through praying for me and academically through your intelligent guidance and counselling. Really you have nurtured me into an important citizen of the country.

I pledge I will forever be indebted to you for your love, kindness, commitment and sincere support.

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ABSTRACT

Common bean is the most cultivated crop in all the districts of Uganda and the major challenge during the storage stage of crop is bean bruchid capable of over 40% reduction in bean quality and quantity. A number of commercial insecticides have been used to control the pest but they are too toxic to threaten the health of the bean consumers.

This study assessed the effectiveness of banana peelings ash, bean husk ash and rice husk ash at 1mm, 2mm and not sieved particle sizes against bruchids (*Acanthoscelides obtectus*) in stored NABE 1 beans (*Phaseolus vulgaris*). The objectives of this study were ; to determine the effectiveness of different ash particle sizes in control of bruchid infestation in stored NABE 1 seeds, to determine the effectiveness of different ash types in control of bruchid infestation in stored NABE 1 beans, and to establish the interaction between ash types and particle sizes on of bean bruchid infestation in stored NABE 1 seeds.

The experiment was carried out at Nagongera campus Biology laboratory. 5g of each ash type at particles sizes of 1mm, 2mm, not sieved were added to storage bottle containing 100 NABE 1 seeds while the control never received any treatment. The experiment was set in a completely randomized block design with four replications. The number of infested beans, exit windows and number of emerged adult bruchids were collected after four weeks of experimental set up as results

The Microsoft excel 2013 was used to perform two way ANOVA to test whether there is significant difference in the effectiveness of different ash types at different ash particle sizes in control of bruchid infestation in stored NABE 1 at $P < 0.05$. Rice husk ash at 1mm particle size had the least mean number of emerged adult bruchids, exit windows and infested beans while the control had the highest. There were significant differences in mean number of infested beans, exit windows, emerged adults among the ash types at different particle sizes at < 0.05 (Two way ANOVA).

Based on the findings of this study, Rice husk ash at 1mm was the most effective and banana peelings ash not sieved was the least effective. There is need for further studies on other species of rice and other ashes from cereals to find out other cereals whose ashes can be used in the control of bruchids in stored grains. There is also need to determine the effective ratio of rice husk ash to bean seeds per package.

Key words: Ash type, Ash particle size, *Acanthoscelides obtectus*, NABE 1 beans, bruchid control.

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