STORAGE OF COCOA NIBS

INTRODUCTION

Cocoa beans are normally stored in form of whole beans in jute bags for relatively short period. They can be stored for 5 to 6 months safely. During storage and transportation they are subjected to problems of insect infestation, mould contamination and moisture exchange between atmosphere and the beans, which are hygroscopic. Other problems encountered are beans size variation, high shell content, price fluctuation and adulteration. Both weight and quality differences will have a bearing on trading value. To overcome these problems and to prolong the shelf life of cocoa beans, a study was conducted to store cocoa nibs in plastic lined jute bags.

METHODOLOGY

Sample of cocoa nibs packed in three different types of plastic lined jute bags

Cocoa nibs were prepared as shown in Figure1 and packed in three different types of plastic materials and layered in jute bags.

Types of plastic materials used were linear low density polyethylene vinyl alcohol/linear low density polyethylene (LLDPE/EVOH/LLDPE),oriented nylon/polyethylene (ONY/PE),oriented polypropylene/polypropylene (OPP/PP). These samples were stored for two years for quality assessment.

Samples were tested for chemical and physical analyses. Moisture content was determined using ISO method. Free fatty acid and microbiological tests (total plate count, yeast and mold count) were performed using SIRIM method. Water activity was done using a water activity meter. Packaging materials were tested for water vapor transmission rate using a TNO/PIRA direct reading WVTR meter. Oxygen, and carbon dioxide transmission rate were measured using a Toyoseiki GTR meter.

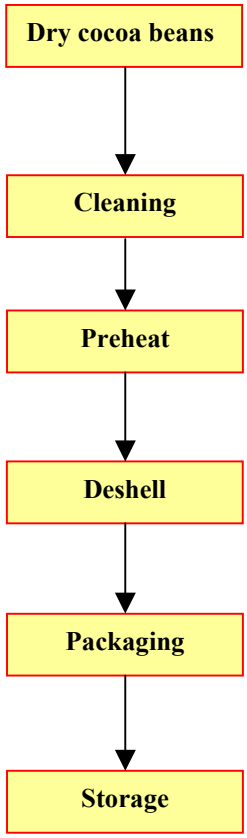

Figure 1. Flow diagram of nib preparation

CONCLUSION

All samples analyzed showed slight increase in free fatty acid, moisture content and water activity. Microbial growth are minimal and no yeast and mould were detected. Chemical and microbial composition for all samples analyzed during the storage duration are within acceptable limit. Therefore, cocoa nibs packed in jute bags layered with either type of the three plastic materials can be safely stored for at least two years without quality deterioration. Additional cost of RM 3.00 is needed for the plastic material and 85 cent per piece for gunny sacks (29 inches x 43 inches).

ENQUIRIES

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