

ABSTRACT

The Influence of Fermentation and Drying on the Flavour and Quality of Selected Cacao (*Theobroma cacao* L.) Genotypes

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The main aim of this study was to address concerns regarding the quality of cocoa in Trinidad and to investigate the effect of certain fermentation and drying regimes on both the quality and maximum expression of the full genetic flavour potential of selected cacao genotypes.

This investigation used standardised procedures for fermentation, sample preparation and sensory evaluation which was supported by physical quality assessment and chemical analysis.

Three (3) fermentation regimes were investigated using discrete samples of 5 Trinidad Selected Hybrid (TSH) Clones and Imperial College Selection (ICS) 1 in nylon net bags placed at the centre of a fermenting mass of mixed beans in baskets for a 5 day, and extended 7 day, fermentation as well as a double walled sweat box for 7 days.

Beans from the 5 day and 7 day basket fermentation were dried using (i) an electrically heated convection dryer and (ii) a cocoa house with a moving roof system respectively. Beans from the sweat box were dried using a diesel powered artificial dryer.

Temperature, pH and moisture levels were measured during the course of the trials and were found to be consistent with previous research studies. The results from the cut test showed that the sweat box gave beans of better physical quality. The float test did not give comparable results to the cut test.

Standardised procedures for cocoa liquor preparation and sensory evaluation were followed with 8 flavour profiles being investigated and the results showed that the sweat box gave beans of best quality.

I wish to thank my supervisors, Dr. E. Comanșag and Prof. I.A. Spence for their invaluable guidance.

The results prove that the various methods of assessing quality via physical, chemical and sensory measurements can be combined to give a holistic means of assessing quality in fine and flavour cocoa.

I also wish to thank Mr. Chandrabhan Shripa of Cocoa Research, Central Experimental Station,

Furthermore, the sweat box fermentation and drying treatment combination best expressed the flavour potential of the cacao genotypes investigated. Land and Manioc Resources for allowing me the use of

their cacao genotypes.

My deepest and most sincere appreciation also goes out to Cadbury Ltd., Nestlé Research and Development Centre (Yorkshire), the University of Reading, Dr. John Clapperton of Mars Confectionery Inc. and Dr. Michelle East of the Biscuit, Cake, Chocolate and Confectionery Alliance (BCCCA) in the United Kingdom for their generous donation of equipment, samples and information necessary for the conduct of this project.

Special thanks to Associated Biscuit Industries Limited for their assistance and Mr. Anthony Banfield for his advice and assistance. Also to Mr. Bruce Lauchner for his advice on statistical treatment, Mr. Haven Motenunol and Mrs. Corel Tarradath at the Caribbean Industrial Research Institute (CARIRI) for their co-operation and use of their facilities.

Finally my heartfelt appreciation to my family, friends and especially my panelists for their immense encouragement, patience and support given in bringing this project into being.

Darin Jordan