

UNIVERSITI TEKNOLOGI MARA

**DEVELOPMENT OF HALALAN
TOYYIBAN RISK MANAGEMENT
PLAN OF CHILLED BLACK CINCAU
DRINKS DURING STORAGE AT
WAREHOUSE**

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MSc

October 2020

AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.


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ABSTRACT

As demand for the Halal food has increased, the supply chain of the Halal food also become perplexing and complicated. Due to these factors, in order to conform the integrity of Halal and Toyyan are maintained by Logistics players from the manufacturers until retailers, Department of Standard Malaysia has developed several Malaysia Standards to be used by those supply chain entities as a reference. However, in MS2400-2:2010, only a blank example of Halalan Toyyan Risk Management Plan (HTRMP) was provided. Thus, this research was conducted to identify HTRMP monitoring elements or criteria of chilled black cincau drinks based on syariah compliance and toyyan aspects and to investigate the influenced of physical, microbiological, chemical and environmental factors (humidity, handling and hygiene practices) on the quality properties of chilled black cincau drinks. It is very well known that chilled food products are very sensitive to temperature fluctuations and the microbial activities can increase exponentially once it goes beyond the recommended temperature range. Therefore, the ultimate aim for this research is to develop the Halalan Toyyan Risk Management Plan (HTRMP) table elements specifically for chilled beverages. The data were collected through a structured survey followed by sampling of the chilled black cincau drinks done at the manufacturer storage room followed by scientific analysis. Three batches of black cincau drinks from different production date namely B1, B2 and B3 were stored at the manufacturer's cold room for 30 days. The chemical and microbiological analysis were then conducted at the microbiology lab, UiTM Shah Alam. There was a significant difference for the temperature of the storage room where the highest storage temperature recorded was 8.60°C where it is exceeding the proper storage temperature for chilled products which is 4°C. Also, the scientific findings of three batches obtained confirmed that the count of total aerobic, coliform, staphylococcus and yeast and molds of the products had increased throughout the 30 days of chilled storage thus this proved that the quality properties of the chilled black cincau had changed. From the results, the Halalan Toyyan Risk Management Plan (HTRMP) table elements had been developed. This HTRMP table can be used as a reference by the chilled foods manufacturers to develop the relevant Standard of Practice (SOP) or work instructions which could be implemented in halal warehouse that handle chilled beverages.

ACKNOWLEDGEMENT

In the name of Allah, the Most Gracious and the Most Merciful.

There are numbers of people without whom this thesis might not have been written, and to whom I am greatly indebted.

Alhamdulillah, all praises to Allah for His *rahmah*, *hidayah* and bless that allow me to gained an opportunity in embarking my MSc then successfully completing this research title “Development of Halalan Toyyiban Risk Management Plan of Chilled Black Cincau Drinks During Storage at Warehouse” which is a long and challenging journey. My deepest gratitude goes to my supervisor Ts. Dr. Aida Firdaus Binti Muhammad Nurul Azmi and my previous supervisor who had retired, Associate Professor Dr. Zainal bin Samicho for their continuous support, guidance and love throughout the completion of this study. My heartfelt thanks go to the panel members of my viva, Associate Professor Ir. Dr. Nur Emileen Abdul Rashid as a chairperson, Associate Professor Dr. Anis Shobirin Meor Hussin (UPM) and Dr. Siti Roha Ab Mutalib (FSG, UiTM) for their positive comments and ideas.

Also, my special thanks go to my parents especially guardian from heaven, my lovely mother Mrs. Hasnah binti Mohamad for both supports; mentally and financially throughout this master journey. Also, her naggings that finally make this thesis comes true. I love you mom, may Allah reward you with the highest Jannah al-firdaus. My uncle, Mr. Othman bin Mohamad for the magical sentences in every brainstorming session. Not to forget, my lovely aunty Mrs. Sabariah binti Abdullah who always providing a complete set of meal in each meeting.

My acknowledgement also goes to my wonderful siblings, extended family members, colleagues and friends; especially Hafsa binti Yahya, Nur Shahida binti Mat Nawawi, Nurul Farahanim binti Ahmad Radzi, Nur Wazirah binti Radzman Shah, Mohamad Firdaus bin Mohd Rashid and Nik Mohd Fikri bin Nordin with whom I had worked on Halalan Toyyiban Supply Chain grant. To my sincere proof reader, Mrs. Nur Rashidah binti Abd Manap thank you so much for the time given in reading my writings. May Allah bless all of you, in this dunya and the hereafter.

Last but not least, a sincere thanks to Ministry of Education, Malaysia through Malaysia Institute of Transport (MITRANS) for funding this research. Finally, my honest thanks to the fellows, staffs and postgraduates’ member at MITRANS for their support and encouragement words that I could not name them all who are too numerous to mention.

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