

UNIVERSITI TEKNOLOGI MARA

**HEAVY METALS AND MICROBES
IN ORGANIC AND CONVENTIONAL FRUITS AND
CONSUMER PERCEPTION TOWARDS ORGANIC
FOOD**

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ABSTRACT

Consumption of vegetables and fruits is widely recognized as an essential component of any balanced diet, providing minerals, vitamins and other nutrients which can also minimize chronic disease, cancer and heart disease risk. However, public health usually linked with pathogens and heavy metals in fresh produce have been reported in a number of countries worldwide. People say that organic is more healthy and safer to be consume than the conventional as it potentially contain harmful pathogens and high level of heavy metals concentration. Therefore, this study aims to determine the heavy metal and microbes in organic and conventional fruits and the consumer perceptions toward organic food. There are three types of fruits used in this study which are berries type: *Actinidia deliciosa* (kiwifruit), stone fruit: *Prunus domestica* (plum fruit) and pome fruit: *Malus pumila* (apple) in order to determine the heavy metals and microbes in both organic and conventional fruits. The findings in this study provide the content of heavy metal concentration and microbes in both organic and conventional fruits at retail level in Malaysia. Ingestion of high concentration of heavy metals can have consequences on human health and different microbial groups in fresh produce can have different effects on human health. In consumer perceptions part, there are five factors included in this study which are product characteristic, price, labelling and packaging, promotion, and accessibility of organic food (place). The findings of the study indicated that the demographic profiles seemed to affect the consumer's perception on organic food. This paper intensifies the perception of consumers in various factors (product, price, labelling and packaging, promotion and place) towards organic food.

Keywords: Organic; Conventional; Heavy Metal; Microbes; Consumer Perceptions;

CHAPTER ONE

INTRODUCTION

1.1 Background

Organic food mostly can be defined as an agricultural food product which does not contain genetically modified ingredients, chemical pesticides or chemical additives to make food stay fresh for unnatural amount of time. Over the past decade, there is an increasing data on organic food market which has grown continuously where Denmark, Austria and Switzerland have the highest market shares on organic food (Stolz et al., 2011). Due to high demand of food production, it has put pressure on the farmers in yielding more crops which may ending up in producing conventional food that using synthetic pesticides and fertilizers. However, due to several factors such as environmental concern, health concern and lifestyle, product quality and subjective norms there is a significant increase of awareness among consumers thus the demand of organic food also drastically increased (Basha et al., 2015; Hossain & Lim, 2016).

Heavy metal contamination on foodstuff challenge in these days as the exposure of heavy metal widely spread through air, soil and water pollution (Orisakwe et al., 2012). Heavy metals enriched ecosystem components arise from rapid industrial growth, advances in agricultural chemicalization or human activities and lead to metal dispersion in the environment and cause impaired health of the population by the ingestion (Zukowska & Biziuk, 2008). The heavy metals goes into food chain which can lead to increased susceptibility and exposure to metal poisoning of the local population (Orisakwe et al., 2012). Excessive uptake of dietary heavy metals cause several health effects, furthermore, the consumption of heavy metal contaminated food can seriously deplete