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***CONSUMER PURCHASING BEHAVIOR TOWARDS HONEY IN
MALAYSIA***

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**CONSUMER PURCHASING BEHAVIOR TOWARDS HONEY IN
MALAYSIA**

By

EE PEY WEN

**Thesis Submitted to the School of Graduate Studies, Universiti
Putra Malaysia, in Fulfilment of the Requirement for the Master of
Science**

December 2016

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Abstract of thesis presented to Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

CONSUMER PURCHASING BEHAVIOR TOWARDS HONEY IN MALAYSIA

By

EE PEY WEN

December 2016

Chairman : Associate Professor Norsida Man, PhD

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Honey already exists in the world millennia years ago. It is commonly used in daily lifestyle such as drink and energy booster at that time. Apart from that, it is also treated as traditional and natural supplement. In ancient time, humans already started to use it as traditional medicine. Nowadays, medical technology has advanced by leaps and bounds and thus becoming a standard globally. People trusts in the advance medical technology instead of the traditional medicine such as honey. However, there are certain of peoples who still believed on the health benefit provided by honey. Moreover, the world population of human living in this world is around 7 billion which still increasing year by year. The production of honey is still far from enough to fulfil the human's needs and wants. In addition, humans thought is varies from each other, therefore humans has different perceptive toward the health benefit provided by honey. Thus, the main purpose of this study is to determine the factors influence the consumer purchasing behaviour towards honey in Malaysia. A survey was conducted among 1018 respondents from each states of Malaysia. In this study, theory of reasoned action model has been adapted in order to have a better and clear understanding towards the consumer purchasing behaviour. Besides that, the data analyses were conducted by descriptive analysis, reliability analysis, factor analysis and multiple regression analysis. The factors that extracted from the factors analysis are health benefit, brands, colour, price, and taste. Based on the multiple regression analysis, the correlation has shown relationship between the factors and the consumer purchasing intention is low correlation but the F ratio is highly significant. Therefore, it has indicated that the honey purchaser is suitable in the model.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk Ijazah Sarjana Sains

GELAGAT PEMBELIAN PENGGUNA TERHADAP MADU DI MALAYSIA

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Madu telah wujud di dunia ini dari beribu tahun yang lalu. Pada zaman dulu, madu digunakan dalam gaya hidup harian seperti air minuman dan tenaga booster. Selain itu, madu adalah salah satu makanan tambahan tradisional dan semula jadi. Pada masa purba, manusia telah mula mengambil madu sebagai ubat tradisional. Pada masa globalisasi kini, teknologi perubatan semakin maju dan pesat. Walau bagaimanapun, sesetengah orang masih percaya kepada manfaat kesihatan madu. Selain itu, seluruh penduduk dunia ini adalah sebanyak 7 bilion masih meningkat dari tahun ke tahun. Tetapi, pengeluaran madu masih tidak mencukupi untuk memenuhi keperluan manusia. Di samping itu, minda dan fikiran manusia adalah berbeza antara satu sama lain. Oleh itu, manusia mempunyai perseptif yang berbeza terhadap manfaat kesihatan yang disediakan oleh madu. Tujuan utama kajian ini adalah untuk menentukan faktor-faktor yang mempengaruhi tingkah laku pembelian pengguna terhadap madu di Malaysia. Kajian ini telah dijalankan di kalangan 1018 responden di seluruh Malaysia. Dalam kajian ini, teori tindakan alasan model adalah sesuai untuk menjelaskan tingkah laku pengguna membeli madu. Selain itu, kajian ini menganalisis data telah dengan analisis deskriptif, analisis kebolehpercayaan, analisis faktor dan analisis regresi berganda. Faktor-faktor yang diekstrak daripada analisis faktor adalah manfaat kesihatan, jenama, warna, harga, dan rasa. Berdasarkan analisis regresi berganda, korelasi telah menunjukkan hubungan antara faktor dan niat membeli pengguna adalah rendah tetapi nisbah F adalah sangat ketara. Tetapi, ini telah menunjukkan bahawa pembeli madu adalah sesuai dalam model.

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TABLE OF CONTENTS

	Page
ABSTRACT	i
ABSTRAK	ii
ACKNOWLEDGEMENTS	iii
APPROVAL	iv
DECLARATION	vi
LIST OF CONTENTS	viii
LIST OF TABLES	x
LIST OF FIGURES	xii
CHAPTER	
1 INTRODUCTION	
1.1 Historical of Honey	1
1.2 World Honey Production	2
1.3 Malaysia Honey	4
1.4 Bee	5
1.5 Bee Keeping	8
1.6 Consumer and Honey	11
1.7 Problem Statement	14
1.8 Objectives of the Study	15
1.9 Significance of the Study	16
1.10 Thesis Organization	16
2 LITERATURE REVIEW	
2.1 Honey and Bee Farming/Industry/Apiculture	17
2.2 Importance and Benefit of Honey	18
2.3 Consumption of Honey	19
2.4 Consumer	23
2.5 Consumer Perception and Behaviour	24
2.6 Theories of Consumer Behaviour	26
2.7 Summary	28
3 METHODOLOGY	
3.1 Conceptual Framework	29
3.2 Location of Study	30
3.3 Data Collection	31
3.3.1 Population Sample	31
3.3.2 Sampling Technique	31
3.3.3 Source of Data	32
3.3.4 Questionnaire Design	32
3.3.5 Pilot Study	33
3.4 Data Analysis	34
3.4.1 Reliability Test	34
3.4.2 Descriptive Analysis	34
3.4.3 Factor Analysis	34
3.4.4 Multiple Regression Analysis	35

3.5	Summary	36
4	RESULTS AND DISCUSSION	
4.1	Descriptive Analysis Results	38
4.1.1	Respondents' Demographic Profile	38
4.1.2	Perception towards honey and Health Benefit	40
4.1.3	Factors Influencing the Respondent Purchase Honey	50
4.1.4	Perception of the Respondents towards Honey Consumption, Satisfaction and Loyalty	57
4.2	Reliability Test Results	60
4.3	Factor Analysis Results	66
4.4	Multiple Regression Analysis Results	
5	CONCLUSION AND RECOMMENDATIONS	
5.1	Summary of Study	69
5.2	Conclusion	70
5.3	Limitation of the study	71
5.4	Recommendations	71
	REFERENCE	73
	APPENDICES	84
	BIODATA OF STUDENT	93

LIST OF TABLES

Table		Page
1.1	Honey Retail Price	5
1.2	Malaysia Beekeeping Project	8
1.3	Honey Applications in the Food Industry	14
2.1	The Uses of Honey	21
3.1	The Comparison of Reliability Test Value between Pilot Test and Field Survey	33
4.1	Respondents Demographic Profile (Results)	38
4.2	Does the respondents purchase honey before (Results)	41
4.3	Frequency of Purchase Honey	41
4.4	Price of Purchase Honey	42
4.5	Location of Purchase Honey	42
4.6	Brand of Honey	43
4.7	Frequency of Honey Consumption	43
4.8	Duration of Honey Consumption	44
4.9	Channels to Obtain Information of Honey Products	44
4.10	Opinion of Respondents towards Honey	45
4.11	Perceptions Level of Respondents towards Honey	46
4.12	Perception level of Sweetness	46
4.13	Perception Level Of Sourness	47
4.14	Perception Level of Aroma	47
4.15	Perception Level of Flavour	47
4.16	Perception Level of Bubble	47
4.17	Perception Level of Colour	48
4.18	Perception Level of Fructose Corn Syrup	48
4.19	Perception Level of Vitamin	48
4.20	Perception Level towards Sticky Level of Honey	49
4.21	Perception Level of Smooth in Honey	49
4.22	Perception Level of Granulated in Honey	50
4.23	Health Benefit of Honey	50
4.24	Price Influenced the Respondent Purchase Honey	51
4.25	Colour Influenced the Respondents Purchase Honey	52
4.26	Quality Influenced the Respondents Purchase Honey	53
4.27	Taste Influenced the Respondents Purchase Honey	54
4.28	Brand Influenced the Respondents Purchase Honey	55
4.29	Health Benefit Influenced the Respondents Purchase Honey	56
4.30(a)	Perception of the respondents towards Honey Consumption	58
4.30(b)	Perception Level of the respondents towards Honey Consumption	58
4.31(a)	Perception of the Respondents towards the Honey Consumption and Satisfaction	59
4.31(b)	Perception Level of the Respondents towards the Honey Consumption and Satisfaction	59
4.32(a)	Perception of the Respondents towards Honey Loyalty	60
4.32(b)	Perception Level of the Respondents towards Honey Loyalty	61

4.33	Reliability Test	61
4.34	KMO and Barlett's Test	62
4.35	Total Variance Explained	62
4.36 (a)	Health Benefit Factor	63
4.36 (b)	Reliability Test for Health Benefit	63
4.37 (a)	Brands Factor	64
4.37 (b)	Reliability Test for Brands	64
4.38(a)	Colour Factor	65
4.38 (b)	Reliability Test for colour	65
4.39 (a)	Price Factor	65
4.39 (b)	Reliability Test for Price	66
4.40 (a)	Taste Factor	66
4.40 (b)	Reliability Test for Taste	66
4.41	Model Summary	67
4.42	Coefficients	67
4.43	ANNOVA	68

LIST OF FIGURES

Figure		Page
1.1	World Honey Production During Year 2014	3
1.2	World Honey Exporter Countries during 2015	3
1.3	The Period of Bee Become an Adults	6
1.4	Beekeeping Flow Diagrams for Unprocessed Honey Production	9
1.5	Marketing Channels of Honey and Other Bee Products	11
2.1	Diagrams of Basic Components of the Theory of Reasoned Action	27
2.2	Schematic Representation of Ajzen's Theory of Planned Behaviour	28
3.1	Factors Influence Consumer Purchasing Decision	29

CHAPTER 1

INTRODUCTION

This chapter is set to introduce the historical of honey, world honey production, honey in Malaysia, bee, bee keeping and consumer and honey. It also has indicated the problem statement which to identify the honey market in Malaysia. Besides that, the study objective has set to complete this chapter.

1.1 Historical of Honey

In a millennia year ago, honey has existed in the world already. Almost every religion is strongly believed honey is a best natural supplementary product for them. For example, honey has appear in the bible, the King Soloman has stated, "Eat honey my son, because it is good" (Old Testament, proverb 24:13). Dating back to the 8th century AD prophet Mohamed has recommend that honey can against diarrhea (al-Bukhaari, 1994). Therefore, it has shown the religions are holding strong belief on honey.

Other than religious, the people from different countries also have the same perception towards the honey. One of the biggest countries, China, it has their first compendium of ancient Chinese Medicine Shen Nang after compiled many years BC and in the form of written for the first time around 200 AD which has many prescriptions and medical indication about honey (Siedentopp, 2009). India, it also has indicates the important of honey towards their people. According to the Ayurveda classic Ashtanga Hridaya, written about 500 AD, honey can help to against many diseases like healing and cleaning wounds, anti-bacteria especially the internal and external infections (Krishna, 2005). In Egyptians, honey has the same healing functions as well (Dave, 1954a; Dave, 1954b). Besides that, the ancient Greeks has consume honey as medicine and believed that human life could be prolonged if honey is taken regularly (Lahanas, 2010). As stated above, honey is important for the people since long time ago.

As we know, honey is a sweet and natural liquid which collected by the bee. Then, the bee fly to the flower to collect its nectar and bring back the hive (Aparna & Rajalakshmi, 1999). After that, the bee will process the nectar and transform it become honey. Origin of honey are including flower nectar, few type of flower nectars and exudates of plant. Honey that only contain one type of flower nectar is called as monofloral honey. For the honey that come from few type of flower nectars are named as polyfloral honey. However, honeydew is origin from the exudates of plant which is not flower nectar (Ajibola, Chamunorwa & Erlwanger, 2012)

A pure and natural honey is formed. The composition of honey has a total of 181 substances (Chow, 2002) which have high nutritional value (White & Doner, 1980; Bogdanov, et al., 2008). It also including proteins, acids, nitrogen, amino acids, some minerals and vitamins (Terrab, et al., 2003). Besides that, honey also contain of natural total reducing sugar (below 60%) contain which are fructose, glucose and maltose.

However, the adulteration honey can be found in the market Malaysia nowadays. The adulteration honey also called as fake or artificial honey. It is made from the cane sugar syrup, corn syrup or even the commercial invert sugar syrup (Aparna & Rajalakshmi, 1999). Sometimes, it also can be found that the adulteration honey is inverted sucrose from beet or cane sugar and is produced with or without starch sugar or starch syrup (Belitz, Grosch & Schieberle, 2009). After that, they adjusted the appearance, odor and flavor of the adulteration honey to make it exactly look like the real honey (Belitz, Grosch, & Schieberle, 2009).

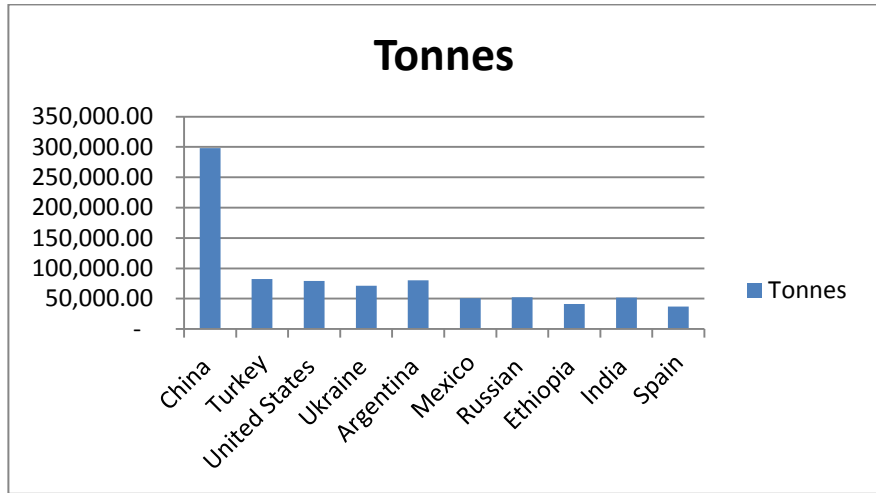
1.2 World Honey Production

Bee is existence in the world before human living. It is also one of the best tool for pollination and good for the plantation production. Therefore, bee is playing an important role in the agricultural industry. Besides that, the main function of the bee is to produces honey which to provide the natural supplement and medicine for human.

Currently, the world population of human living is around 7 billion which still has increment for each year. However, the annual world honey production is 1.2 million tons (Bogdanov, 2012). For produce natural and pure honey, the main external factors is the local climate and weather. However, the climate and weather is not stable in every countries and affect the honey production as well. Therefore, the volume of honey production is not stable as expected. U.S. Department of Agriculture has released an annual report where the U.S. Beekeepers reported that they losing 44 percent of their total number of colonies on 2015 year (Friends of the Earth, 2016).

As the graph below in Figure 1.1 has shown the world honey production during year 2014. Among all the countries, China is the top honey producer. Besides that, China also is the world largest country in beekeeping and export honey to other countries. However, this has not reduce the consumption desired toward honey in China as well. This is because the large population of China which has create the huge potential consumption of honey in China (Beijing Regalland Convention & Exhibition Co., Ltd. , 2016).

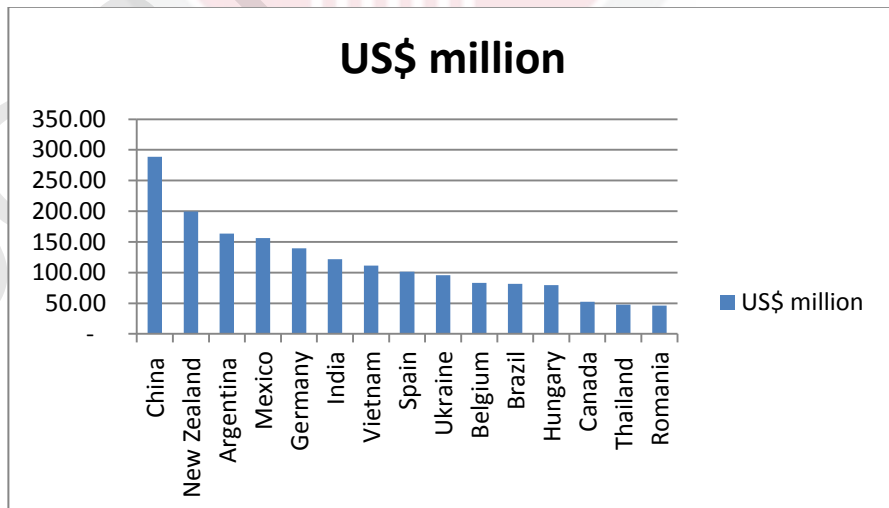
Figure 1.1: World Honey Productions during Year 2014



Source : Beijing Regalland Convention & Exhibition Co., Ltd (2016)

Export is one of the main income sources for a country. On the year 2015, the total US\$2.3 billion of natural honey has export by country (Workman, 2016). Therefore the top 15 countries that exported natural honey during 2015 has shown as the graph as below. Exported honey is important due to the health consciousness aware among the public nowadays. Therefore, honey is known as one of the natural ingredient that able to produce natural skin care product, mixture with food and act as natural supplement.

Figure 1.2: World Honey Exporter Countries during 2015



Source: Workman (2016)

In the world honey producer, China is the leader of the honey producer (USAID, 2012). Its also one of the world's largest honey exporter. It also has export more than 50 countries or regions including Japan, U.S., Belgium, United Kingdom, and Spain which accounted for nearly 77% of the total honey exporting of China in the year between 2005 to 2009 (Wei, Huang and Yang, 2012). However, European Union has banned the China's honey due to the over antibiotic contamination from the year of 2002 to 2004. Therefore, this has shown European Union is concerned about the quality of imported honey.

1.3 Malaysia Honey

Malaysia is one of the countries located in the equatorial position with the hot weather at all the year. It also full with natural resources in flora and fauna. With the good climate and environmental conditions, the honeybees has produce the different quality of honeys (Chua et al., 2012). Therefore, Malaysia has wide variety of the botanical which has produce different taste and colors of honey (Crane, Walker & Day, 1984).

In Malaysia, there are a few varieties of famous honey such as tualang (*Koompassia excels*), gelam (*Melaleuca cajuputi*), acacia, durian, getah (*Hevea Brasilinesis*) and forest honey. Tualang honey is wild rainforest honey. Normally, this "tualang" honey is collected from the combs of *Apis Dorsata* species. Its hives is built in the top of the trees (*Koompassia excels*) (Tan et al., 2009). Therefore, the bee hunters need to go into the rainforest to find the honey which climb until top of the tree.

Besides that, it has variety of branded honey which produced locally or imported. Therefore, the easiest way is to get honey which through intermediary like department stores, retail shops, or honey shop (Lim and Baharun, 2009). However, most of the consumers prefer to purchase honey directly from bee farm. Therefore, table 1.1 has shown some of the alternative honey retail price which is directly from the farm. In the table, the selected five bee farms which are Madu Lebah Soon Lee, Natural Bee Breeding Sdn Bhd, Ratu Lebah Bee Farm, Perniagaan Miss Honey and Dusun Buah Buah Desaru.

Table 1.1: Honey Retail Price

Farm/Owner Name	Location	Brand/Product Identification	Packing	Selling Price (RM)
Giant Bee	Air Keroh, Melaka	Pure Honey	1000g	62.00
		Stingless Bee Honey	1000g	95.00
Perniagaan Miss Honey	Ulu Tiram, Johor	Fongjian Mi	1000g	70.00
		Natural Honey	1000g	50.00
Ratu Lebah Bee Farm	Jalan Kesang, Muar, Johor	Star Fruit Honey	700g	45.00
		Royal Jelly Honey	700g	45.00
Dusun Buah-buahan Desaru	Desaru, Johor	Madu Asli	1000g	45.00
		Madu Tongkat Ali	1000g	75.00
Natural Bee Breeding Sdn Bhd	Ayer Molek, Melaka	Acacia Honey	800g	80.00

Source: Lim and Baharun (2009)

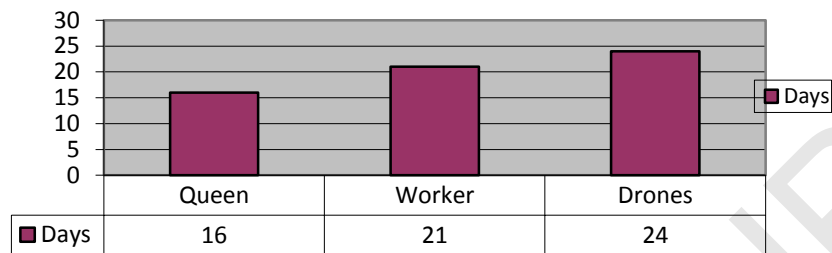
1.4 Bee

As Albert Einstein had stated, “If the bee disappeared off the face of the earth, man would only have four years left to live”. This is because the bee is not only produce honey for the man use but help in increasing the agricultural production through pollination (Kangave and Ssewanyana, 2004). Therefore, bee is an important chain in our lifecycle. As we all know that bee has existed around 100 million year ago which has existed far longer than humans.

Every living animals and insects have its own biology life cycle. As same goes to bees which is live in a matriarchal society which have queen bee, drones and workers that work together to maintain the hive (Lim & Baharun, 2009). As the nature, queen bee is leading the colony which lays egges all the times. However, life period for a queen bee can be last for 2 to 5 years (Mckay, 2010). Drones is a male bee and “less function bee” in a colony because its job is to intimate with the queen bee and then die rapidly after explosive mating (Mckay, 2010). The most important character in a bee colony is the worker bee which have to do the all the job in colony that including cleaning and maintaining cells, remove the debris out from the hive, feeding the larva, receiving nectar, handling pollen, and of course building the wax comb for their hive (Mckay, 2010).

For every life being has its own life cycle. In the Figure 1.3, it has shown the period of the larva bee become an adult bee. However, it just an average period for the bee and it might has some slightly different which depending on the temperature, nutrition and race (Mckay, 2010). For the queen bee, it take 16 days from a larve become adult. For the worker and drones, the period is longer which is 21 days and 24 days.

Figure 1.3: The Period of Bee Become an Adult



Source: Mckay (2010)

In Malaysia, we can find out a few different types of bees. For the most common bees' types that we can find in Malaysia are *Apis dorsata*, *Apis mellifera*, *Apis cerana* and Stingless bee. *Apis dorsata* is one of the biggest honeybees and has the largest comb (Siriwat, Chanpen & Pichai, 2012). Normally, it can be found in a forest or a suburb, building their hive on a tall tree, a tall building or under a high tank (Siriwat, Chanpen & Pichai, 2012). The honey that collected by *Apis dorsata* is slightly expensive in Malaysia due to the bee living environment which is very difficult to reach and hunt it.

Other than that, *Apis mellifera* and *Apis cerana* are other famous types of honey bees in Malaysia because they have a good economic value and are able to produce the most honey (Crane, 1975). In Malaysia, most of the beekeepers are keeping the *Apis mellifera* which is named as western/European honeybee. It also can be named as foreign bee or an Italian bee. The *Apis mellifera* bee prospered in Italy at earlier stages with an oldest history of Italian beekeeping (Siriwat, Chanpen & Pichai, 2012). Besides that, the size of *Apis mellifera* bees are much bigger and able to carry more honey compared to *Apis cerana* but smaller than *Apis dorsata*.

For the *Apis cerana*, it is a local bee and normally beekeepers will call them as eastern hive bee. It has a smaller size than *Apis dorsata* and *Apis mellifera*. Its body has brown and yellow stripes on its abdomen. Its living environment is built inside a tree hollow or a building that is shut and dark (Siriwat, Chanpen & Pichai, 2012). Furthermore, bee hunters also prefer to hunt for the *Apis cerana* because its living environment is not too high and easy to hunt for. Besides that, *Apis cerana* is a local bee that is easy to manage and take care of; therefore it does not require a high level of beekeeping skill and knowledge which compares to *Apis mellifera*. Therefore, Malaysians prefer to breed *Apis cerana* which is a local bee which doesn't cost too much and is easy to find in Malaysia.

Nowadays, *Apis trigona* which is also called as Stingless honey bee. Recently it has become very popular and famous in Malaysia. This type of bee can only be found in tropical countries like Malaysia, Indonesia and Thailand. Its living environment

usually nests inside the tree trunks, underground or rock. *Apis Trigona* is a local bee in Malaysia which is the easiest to take care of and seldom has any disease. Therefore, the bee keeper do not need to invest too much of money and spend less time in taking care of it. They just need to modify the *Apis Trigona*'s hive and put a topping (standard wooden box) on the tree trunk. The topping is easy for the bee keeper to harvest the honey and pollen in the hive. However, *Apis Trigona* has low economic value because its honey production is very low which not sufficient to meet the market demand.

Moreover, Malaysia is a strategic place that suitable for the bee keeping. Normally, most of the bee keepers prefer keeping *Apis Melifera* because of it can produce high volume of honey which is able to provide better economic value in Malaysia. Besides that, Malaysia has a lot beekeeper which running in a small bee farm which throughout the rural areas of the country (Lim & Baharun, 2009). However, there still have some bee farms which operate with commercialization in Malaysia, for example, Summer Pacific Sdn Bhd at Bintulu, Sarawak, Natural Bee Breeding Sdn Bhd at Ayer Molek, Melaka and B-B town Sdn Bhd at Bukit Katil, Melaka.

Additionally, the table 1.2 has shown the beekeeping project in each states of Malaysia. In the table, it has shown each state, number of the beekeepers, species of bee and number of colonies in each state.

Table 1.2: Malaysia Beekeeping Project

	No. of Beekeeper	Species of Bee	No. of Colony
Selangor	3	Apis Melifera	86
	14	Apis Cerana	165
Terrengganu	3	Apis Cerana	34
Kelantan	1	Apis melifera	26
	4	Apis Cerana	70
Johor	5	Apis melifera	230
	10	Apis melifera	260
	15	Apis cerana	416
Perak	24	Apis Cerana	373
Pahang	1	Apis melifera	61
	1	Apis cerana	120
Melaka	2	Apis Melifera	2634
	5	Trigona	4100
Kedah (Langkawi)	1	Apis Melifera	250
Sarawak	1	Apis Melifera	2000
Total	79		6726

Source: <http://agrolink.moa.my/pqnet/kwln/lebahmadu.html>

1.5 Bee Keeping

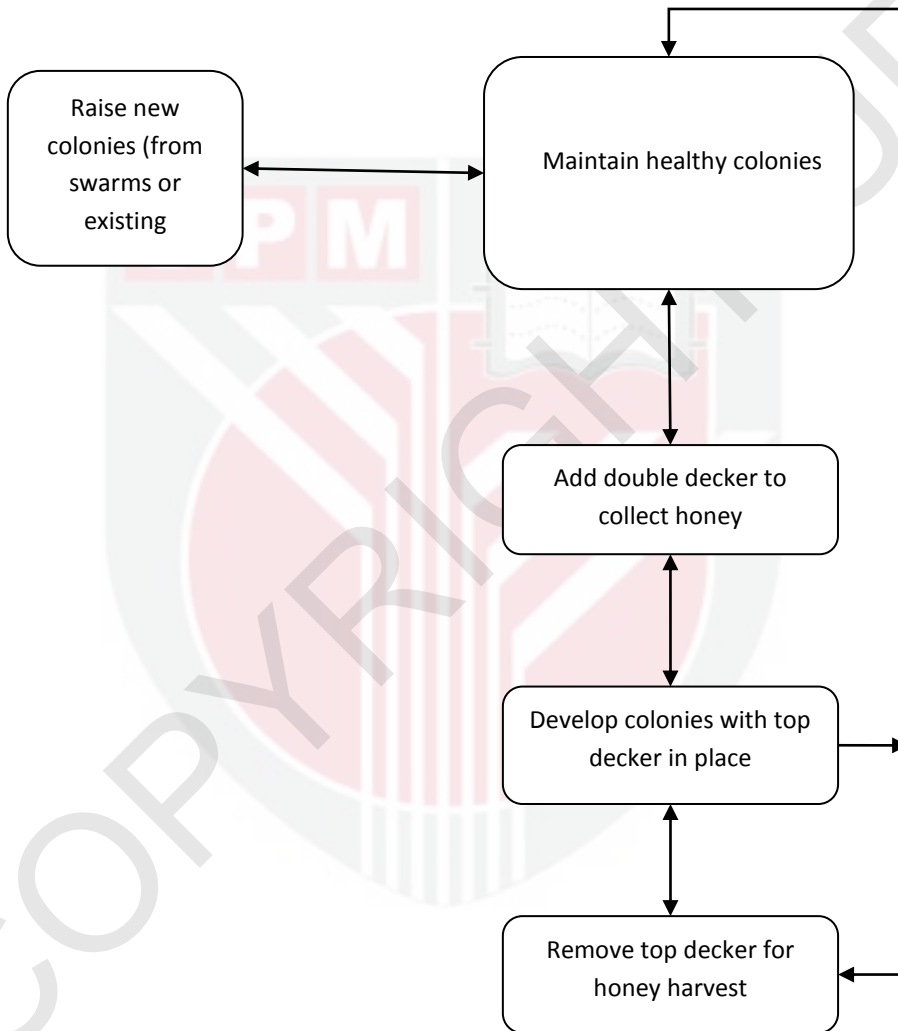
The beekeeping industry is dated back thousands of years during Roman Era (Crane, 1983; Crane & Graham, 1985; Ruttner, 1988). However, human are not breeding the bee in the past centuries but hunting for the honey. So, the mans are willing and ready to risk their life in order to get the honey during the old ancient (Bogdanov, 2012). As the rock painting dating from 8000 to 15000 years, the human has started to hunt for the wild bee for more than 8,000 years in order to collect the honey (Lim & Baharun, 2009). In Eygpt, the egyptian painting and Ancient Near Eastern texts suggest that bees should kept for the large scale production of precious wax and honey (Crane, 1983; Serpico & White, 2000; Kritsky, 2007).

Moreover, honey hunting is a difficult and dangerous task to complete sometimes because the bee hunter need to climb up to the top of the tree to collect the honey. However, there are some people who still willing to risk their life for the honey hunting which just to earn extra income (Lim & Baharun, 2009). Sometimes, life might not as expected smooth and going well, the bee hunter is facing the dangerous risk and also might get nothing in the bee hive. Therefore, the man has found out that beekeeping is important for them and begun to learn the bee keeping's skill and knowledge in order to reduce the dangerous risk and unstable earning income in their life.

Today, the bee keeping industry is growing fast with the high technology and better education level. The beekeepers have move the bee hive into the standard

wood made hive and produce bee comb foundation as base for them to build up the comb easily. During mid-19th century, a square, manmade Langstroth hive is designed by the Lorenzo Langstroth who an American is ordained who is regarded as the Henry Ford of modern beekeeping (Buchmann, 2005).

Figure 1.4: Beekeeping Flow Diagrams for Unprocessed Honey Production



Source: Formato et al. (2011)

In the Figure 1.4, it has shown the beekeeping flow diagram for the unprocessed honey production. In the diagram, it has shown the process of keeping bee colonies until the process of honey harvesting. At first, the beekeepers need to breed the bee colonies and raise more new colonies. In the meanwhile, the

beekeepers have to maintain the bee colonies in the healthy conditions. Then, the beekeepers need to add on the top hive boxes for the stronger colonies. At this moment, the bee hives box has become double decker which named as Super Bee Hive. After that, the beekeepers will develop the bee colonies until has the double decker in place. When the honey comb in the top decker is full filled with honey, then, the beekeepers will remove top decker for honey harvest.

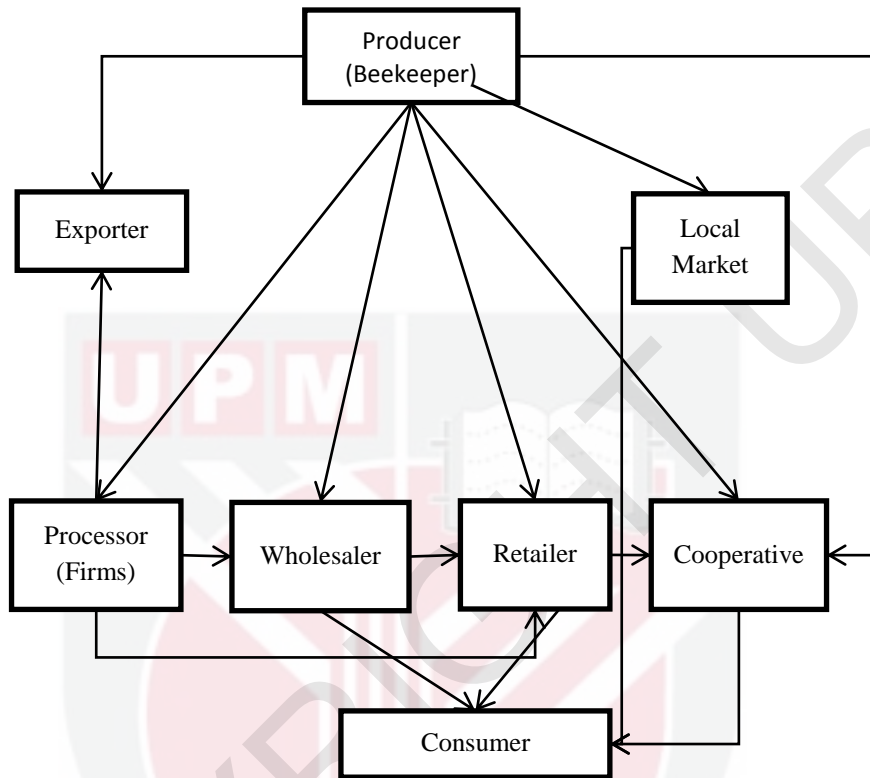
With the modern beekeeping method, the beekeepers can harvest the honey easily with the honey extraction machine. Honey extraction machine is a manual operate machine which put the honey comb into the machine and spin it manually in order to spin out the honey from the honey comb without destroy the originality of comb. Besides that, it also easy for the he beekeeper to rotates it and spins the honey out from the honey comb (Siriwat, Chanpen & Pichai, 2012). Currently, the honey extraction machine is used commercially in the honey harvesting process because they concerned about the product quality and hygiene.

In 1980s, the beekeeping industry has been started to developing in Malaysia but the effort in commercialization of this industry is moving slowly (Wan Ismail, 2016) However, the beekeeping industry in Malaysia has high potential in developing because Malaysia is full with the natural resources like variety of flora and fauna which able to produce high quality of honey and bee products. For example, the honey production like rubber tree, pineapple, gelam tree, acacia tree, fruit tree, coconut tree and palm oil tree.

For a high quality and natural honey, the heating and value adding process is not encourage because the heating and value adding process will spoil the nutrition of the original honey. Furthermore, honey storage is an important process to store the honey and not affects the freshness and quality of honey. During the storage process, temperature control is important due to the both physical and chemical changes in the aspect of the color, aroma and flavor (Aparna & Rajalakshmi, 1999). Therefore, honey is suitable to keep in lower temperature place, so that it can keep for a longer period (Aparna & Rajalakshmi, 1999).

Nowadays, health consciousness is become main concern for consumers. Therefore, they have changed their food consumption lifestyle and prefer for natural supplements. In order to have a better healthy food consumption, natural pure honey has become their main choice for consumption. Therefore, the consumers can get the honey through few channels. As shown in Figure 1.5 which is clearly shows the marketing channels of honey and other bee products. In the diagram, producer is the main supplier which supplies natural honey to other channels. The producer can supply honey to local market, processor, wholesaler, retailer, cooperative and even directly sell to the consumers.

Figure 1.5: Marketing Channels of Honey and Other Bee Products



Source: Saner, et al, (2007)

1.6 Consumer and Honey

In the early Homo, honey was the main food source for human (Allsop & Miller, 1996; Bunn & Schoeninger, 2009; McGrew, 2001; Schoeninger, et al., 2003; Skinner, 1991) which provide them daily energy (Skinner, 1991). In the ancient Greeks, Romans, Egyptians and Chinese millennia, honey is consume as a nutrition delicacy which used as wound treatment's medicine (Zumla & Lulat, 1989). Therefore, honey is important as a marketable commodity, it is cherished by local collectors for its taste and medicinal properties, as well as for its magic religious attributes (Crane, 1979).

As the nature, honey is an important benchmark and standard for both consumers and suppliers in the honey industry (Baltrusaityt, Venskutonis & Ceksteryt, 2007). Besides that, honey has high nutritional value which able to provide wide range of nutrients and good to be treated use as food (Ajibola, Chamunorwa & Erlwanger, 2012). Every human must go through a life cycle from kids to senior citizens.

Adult is a mature stage for everyone. So, the consumption usage of honey for everyone is different. For example, an adult is advisable to take a large portion of honey which to fulfill the needs and wants (Yaghoobi, et al., 2008; Inoue, et al., 2005).

In most of the ancient cultures, honey is treated as medicine because it has high nutritional value (Allsop & Miller, 1996; Jones, 2001). Even in this high technology world, honey still act as an important medicine treatment as well. Besides that, honey also suitable use as an agent with consume the bitter medicine because it is sweet and natural (Nadkarni, 1974; CSIR, 1988; Lavingia, 1982; Alikonis, 1977b; Crisp et al., 1978; Yoyrish, 1960; Attar, 1982; Berthold, Jr. & Benton, 1968).

Besides that, honey also act as antimicrobial properties which can help in clear the infection, boosting the body immune system, anti-inflammatory, anti-oxidant activities and stimulate the cell growth (Al-Jabri, 2005). It also applicable for the external used like burns and wounds due to its anti-microbial activity (Crane, 1980; Khristov & Mladenov, 1962; Bongdanov, 1984). Therefore, honey is not only for consumption but also good for external used which help to kill the bacteria of the wounds.

Moreover, honey acts as an antibacterial agent hydrogen peroxide because it produce by one of its honey composition which is glucose oxidase (White, Subers & Schepartz, 1963). The antibacterial activity also need the high sugar concentration of honey (Mundo, Padilla-Zakour & Worobo, 2004), and also the low honey pH (Yatsunami & Echigo, 1984). However, it is a facts which is those loyalty honey consumer take the honey regularly can help in reduce the blood sugar, to increase the metabolism of blood alcohol and have the anti-inflammatory effects as well (Lower, 1987).

A part from that, honey is good for the digestion as well (Busserolles et al., 2002; Sanz, et al., 2005; Yun, 1996). It also a good medicine and moisturiser for eyes treatment. The ancient people used honey from Attica (Beck & Smedley, 1944) and Indian lotus honey (Fotidar & Fotidar, 1945) as curative substances for eyes disorders. Until today, the indian still use natural honey as eye drops to cure eye disease (Mahawar & Jaroli, 2006; Solovan et al., 2006; Ranjith & Padmalatha, 2004).

Other than medicine usage, honey also playing an important roles in skin care and cosmetic industry. This is because honey can be used to produce alpha hydroxyl acids (AHAs) which is a vital ingredient in the growing market for skin creams and moisturizers. It also can be one of the components as water soluble part of comestic emulsion which as a humidifier for the comestic products and for the skin as well (Bogdanov, 2012). Comestically, honey is a good agent which mixed with other ingredient to make the cosmetic cream, lipstick, lotions and shampoos (Batt

& Liu, 2012). This is because it is help in nourishing and moisturizing the skin. Besides that, honey also have a positive and softening effect on the hair as well (Lower, 1987). Therefore, it can become one of the ingredient of hair shampoo.

Furthermore, honey has become an alternative for mixed up in the food and beverages. Therefore, some of the manufacturer use the health benefit of honey to produce difference products. For example, honey has widely used in industries level which to make baked products, confectionary, candy, mamalades, jams, spreads, breakfast cereals, beverages, milk products and other perserved product as well. Recently, honey also has also been use as sugar substitution to produce the dairy products, for example, milk.

Besides that, some of the creative producer successfully innovate honey into a dried form. Then, they mix up the dried form of honey with the bread which to produce better texture and quality (CSIR, 1988; Crane, 1980; Singh, et al., 1988; Douw, 1970). Another benefit of honey which is can keep the product longer. Some of the manufacturer would like to use the honey to improve the shelf life of the product like sweetened peanut butter spread (CSIR, 1988; Kushida, Nakayama & Koike, 1962; Berthold, Jr. & Benton, 1968; Singh, et al., 1988; Douw, 1970).

In the meanwhile, honey is not only for medical treatment but it also bring out its nutritional value to food industry. Therefore, Table 1.3 has shown the honey application in the food industry. Based on the table, honey can be use as sweetener and it also can be addictive to poultry and other meat, to fruit and vegetables, microwave foos, flour bagels, cereals, chicken marinades, french fries, bread, pasta, extruded snacks, corn chips, potato chips, frozen ice cream and doughs, fruit spreads, peanut butter, nut spread, salsas and sauces and fried or roasted beef and poultry. Therefore, honey has shown its important characteristic towards the food industry.

Up to date, undeniably that sugar is one of the most important sweetener in human daily lifestyle, however, industrial produce sugar are not healthy. Nowadays, the consumer are more health conscious and thus affects their behaviour towards their daily lifestyle. Therefore, consumers are starting to use honey as a replacement for industry produced sugar in their daily lifestyle.

Table 1.3: Honey Applications in the Food Industry

Use	Explanation
Sweetener for: Sport beverages, non-alcoholic fruit beverages, ice tea, yoghurt drinks, chocolate milk beverages; fermented beverages; vinegar, vegetable juices; in mead production.	Supplies different natural honey flavors and colors; honey sugars are fermentable and give alcoholic drinks unique flavors; prevent browning due to antioxidative properties
Additive to poultry and other meat, to fruit and vegetable processing	Antioxidant and preservative (anti-bacterial) properties, reduces browning, improves sensory properties
Additive to microwave foods: cakes, muffins, cookies, glazes	Superior microwave reactivity and water activity management than synthetic sugars
Additive to flour bagels, cereals, chicken marinades, French fries, bread, pasta, extruded snacks, corn chips, potato chips	Improves sensory properties, adds/retains moisture due to hygroscopic properties; improving browning due to reducing sugars
Additive to frozen ice cream and dough	Better stability and sensory properties
Additive to fruit spreads, peanut butter, nut spread,	Better storability and sensory properties
Additive to salsas and sauces	Neutralizes sour and burn intensity
Additive to fried or roasted beef, poultry	Reduces the formation of heterocyclic aromatic amines and their mutagenic effects
Dried honey	Convenient as consistent in texture, flavor and color, allowing blending with other dry ingredient.

Source: Bogdanov (2012)

1.7 Problem Statement

Honey, it's known as healthy and natural supplement products which provides human with high nutritional value. Its contain glucose, fructose, mineral like magnesium, potassium, calcium, sodium chlorine, sulphur, iron and phosphate. It's also consists of vitamin B1, B2, C, B6, B5 and B3 (Khan, 2015). The nutritional value of natural honey is attracting the Malaysian to consume honey regularly. Therefore, the demand towards honey has increasingly as well.

Besides that, one of the previous studies has stated the feedback from Malaysian towards honey is very encouraging. This is because importance of this commodity in Malaysia food sector can be shown through the gradually increase of its demand every year. However it is low in productivity and causes government to encourage the increase of bee breeding by the locals (Ismail). Unfortunately, the bee breeding skill and knowledge among the beekeepers Malaysia is not up to standard where they unable to boost the production up to expectation.

In the same time, the shortage of honey is occurring in the market Malaysia. This is because the demand towards honey is increase and the supply still remaining the same. Besides that, the honey price has increase which also causes some of the honey consumer not affordable to purchase it (Kiew, 1995).

Besides that, the consumers might have the wrong perception towards purity of the honey. In 2006, Prof .Dr. Kamaruddin who is a former lecturer in Universiti Malaya. He has study the honey market in Malaysia. They found out the 80% of the Malaysian honey is adulterated or synthetic (Jaafar, 2006). During 2009, the researchers also have make some observations in “bazaar” or “pasar malam/pagi” in Malaysia, they found out some of the salesman has added the dead bee or honey comb to make it like the natural honey (Lim & Baharun, 2009). Based on the previous research that conducted by other researchers, they have shown the consumers are confused by those businessman because they provide wrong information for the consumers. Therefore, it has shown the consumers still lack of the actual perception towards honey.

Today's, the market trend has changed. Consumers not only concern about the health benefit provided by honey. The consumers are more likely to be brands concern, price concern and even quality concern towards a product. Therefore, this research is conducted to understand the factors influence the consumers purchasing behavior towards honey. Through the research, the researchers can clearly understand the consumers' needs and wants.

1.8 Objectives of the study

Generally, the objective is to determine the consumer perception towards honey in Malaysia.

The specific objectives of this study are:

- 3.1 To determine the respondents' perception level towards honey.
- 4.1 To examine the perception level of respondents towards the health benefits of honey.
- 5.1 To identify the factors that influence Malaysian purchasing honey.

1.9 Significance of the Study

The findings from this study understand the consumer's perception towards pure honey. The consumer also able to perceived the characteristics of the pure honey and make their purchasing decision. Besides that, the consumers also can know the health benefits of the honey.

Moreover, the findings are able to understand the honey consumers in Malaysia. With the information, it has created the awareness among the government agencies which to know the adulteration honey in Malaysia. They can improve the food act Malaysia in order to make a proper guideline for them.

Based on the results, the farmer able to understand the consumer's needs and wants, then, they can make some product differentiation and market differentiation to fulfil the different level of consumers. Besides that, this study also able to help to agriculture industry which understands the consumer perception and behaviour.

1.10 Thesis Organization

This section is to covers the organization of this thesis. This study has 5 chapters which has covering different areas of the study. In Chapter 1, it has including the overview of the agriculture Malaysia, the knowledge of honey and honey production, introduction of bee and beekeeping in Malaysia. Besides that, it has wider knowledge about the honey consumption of the honey. The problems statement, objectives, research questions and significant of the study has included in this chapter as well.

Then, chapter 2 has summarized the previous literature and findings which related to the honey and bee farming/industry/apiculture, the importance and benefits of honey, the consumption of honey, consumers, consumer perception and behaviours and theories of consumer behaviours.

Chapter 3 is present the conceptual framework that adopted in this study. It also discusses the research design such as location of study, ways of data collection and data analysis which going to conducted in this study.

Chapter 4 is the results and the analysis of this studies which able for us to have a clear picture for whole study. For the chapter 5, it has discusses the conclusion and provides the recommendations for the future study in this field.

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