

**A STUDY ON THE STATUS OF TYPES OF VINEGAR
AND THEIR RULES FROM ISLAMIC PERSPECTIVE:
A CASE STUDY IN THE MALAYSIAN MARKET**

BY

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the degree of Doctor of Philosophy in Halal Industry**

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ABSTRACT

Vinegar is one of the oldest condiments, extracted through the process of fermentation and known to be Prophet Muḥammad (S.A.W.)'s one of many favourite foods. For this research, it is focused on investigating various types of vinegar and its *ḥukm* (ruling) from the standpoints of *fiqh*, science, Malaysian Food Act and Regulation and National *Fatwā* Council. A study upon the status of ruling depending on types of vinegar is utmost crucial, given how there has yet to be a clear guideline in determining ruling across various brands to this very day. Therefore, a further study to clarify its halal status from an Islamic perspective would help in harmonising numerous opinions that have existed among *fuqahā'*. As a whole, the main objective to this study is to analyse and verify the halal status to different types of vinegar available in the Malaysian market. It is determined through the concept of *al-taḥawwul* as to decide *fiqh*, based on multiple sources on Islamic ruling in classifying the chosen samples into the following three classes: halal, haram and *shubḥah* (doubtful). It is supported with a detailed laboratory research by examining the percentage of both alcohol and acetic acid in vinegar, whereby its result can be used as a guideline in verifying the halal status of respective types. Twenty-five (25) different types of marketed vinegar, produced from different sources and imported from various countries are chosen as the sample. This includes 15 vinegar products in which do not have halal logo on them, while 10 of which that do, 7 products that are extracted through a traditional method and 18 products that are industrially produced (fast-fermentation). By the end of the study, it is found that there are two products classified to be haram, specifically two (2) of them, while the other twenty-three (23) are certified to be halal. In addition to that, it is also found that vinegar product labelled as halal do follow the *sharī'ah* regulations set by both Malaysian *Fatwā* Council and JAKIM. Few suggestions and inputs are likewise presented towards the involving parties within this halal industry, let it be the government or respective private organisations to further solidify the halal ruling of products that are generally produced through fermentation such as vinegar or any vinegar-based products. With the validation of halal involving vinegar products, it would be improved the well-being of society and country, simultaneously increase the marketability of every vinegar labelled as *halalan ṭayyiban*, not only locally, but likewise internationally.

ملخص البحث

لا شك أن الخل من أقدم التوابل التي يتم استخراجها من خلال عملية التخمير والتي عرفها الجيل الأول في عداد أغذية المفضلة التي كان يحبها نبي الله محمد صلى الله عليه وسلم. سوف يركز هذا البحث على أنواع مختلفة من الخل وحكمها من وجهة نظر الفقه الإسلامي والعلوم وقانون الأغذية الماليزية والمجلس الوطني للفتوى. تعد هذه الدراسة دراسة حالة التي تعتمد على بيان حالات الخل وأنواعه الذي يعتبر أمراً في غاية الأهمية، نظراً لكيفية عدم وجود مبدأ توجيهي واضح في تحديد الحكم عبر مختلف العلامات التجارية حتى يومنا هذا. لذلك، من شأن الدراسة الحالية توضيح وضع الحلال من منظور إسلامي، والذي يساعد على توحيد العديد من الآراء التي كانت موجودة بين الفقهاء. فالهدف الرئيسي من هذه الدراسة هو تحليل حالة مسألة "الحلال" والتحقق منها ضمن أنواع مختلفة من الخل المتوفر في السوق الماليزيا. يتم تحديد ذلك من خلال مفهوم التحوّل وفقاً لما يقرره الفقه الإسلامي، استناداً إلى مصادر متعددة حول الحكم الإسلامي في تصنيف العينات المختارة في الفئات الثلاثة التالية: الحلال والحرم والشبهة. يتم دعمه بإجراء بحث مختبري مفصل عن طريق فحص النسبة المئوية لكل من الكحول وحمض الخليك في الخل، حيث يمكن استخدام نتائجه كدليل في التحقق من حالة مسألة "الحلال" ضمن الأنواع المعنية. تم اختيار خمسة وعشرين (25) نوعاً من الخل المسوق، المنتج من مصادر مختلفة والمصدرة من بلدان مختلفة كنموذج. يشمل ذلك 15 منتجاً من الخل التي لا تحمل "شعار حلال"، بينما يحتوي 10 منها على 7 منتجات يتم استخراجها من خلال الطريقة التقليدية، و 18 منتجاً صناعياً مما يتم تخميره بشكل سريع). في نهاية الدراسة، اكتشف أن هناك اثنين (2) من المنتجات المصنفة على أنها "حرام"، وتحديدًا اثنين (2) منها، في حين أن المنتجات الأخرى الثلاثة والعشرون (23) معتمدة بأنها "حلال". بالإضافة إلى ذلك، وجد أيضاً أن منتج الخل الذي يحمل شعار "الحلال" يتبع أحكام الشريعة الإسلامية التي حدّدها كل من مجلس الفتوى الماليزي وإدارة التنمية الإسلامية الماليزية. وبالتالي يتم تقديم بعض الاقتراحات والمدخلات تجاه الأطراف المشاركة في مصانع منتجات "الحلال"، عنيت بها: الحكومة أو المؤسسات الخاصة المعنية لتوطيد إصدار الحكم بـ "الحلال" في المنتجات التي يتم إنتاجها عموماً من خلال التخمير مثل "الخل" أو أي من منتجات الخل. يتم ذلك من خلال التحقق من صحة منتجات الحلال التي تحتوي على الخل، من شأن هذا الإجراء أن يساند على تحسين رفاهية المجتمع والدولة، ويزيد في الوقت نفسه من إمكانية تسويق كل الخل الذي يطلق عليه "حلالاً طيباً"، ليس محلياً فقط، ولكن أيضاً على المستوى الدولي.

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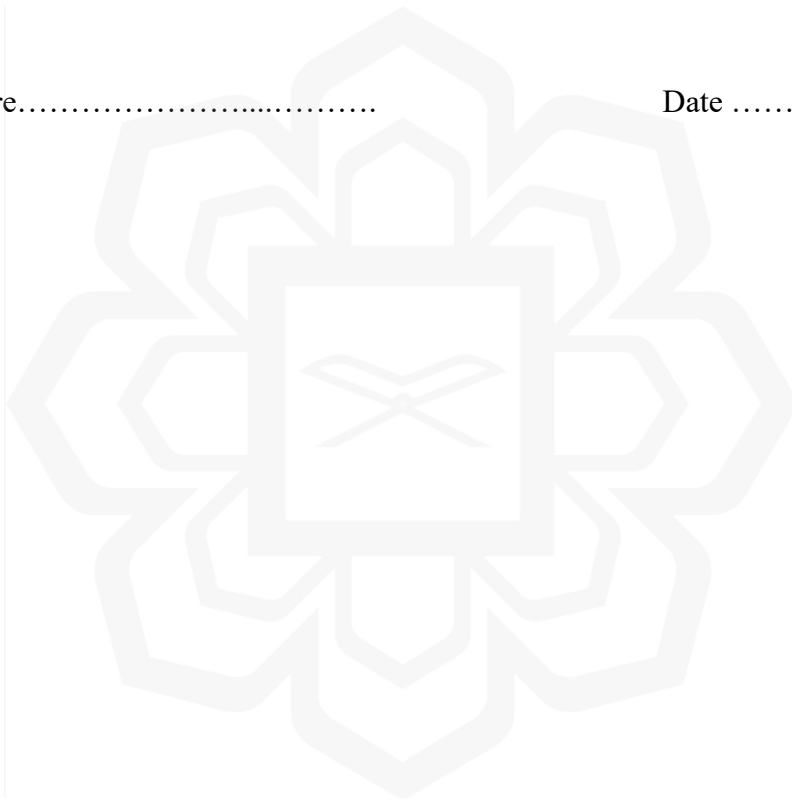
DECLARATION

I hereby declare that this thesis is the result of my own investigation, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

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Signature.....

Date



INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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DEDICATION

This dissertation is dedicated to my beloved parents

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In the Name of Allāh, the Most Beneficent and the Most Merciful,

All the praises and thanks to Allāh (S.W.T.) the Cherisher and Sustainer of the universe, to whom ultimately, we depend for sustenance, guidance and the Creator who is ultimate source of knowledge and wisdoms endowed to mankind. Peace and prayers be upon His final Prophet Muḥammad (S.A.W.).

First of all, I would like to thank to Allāh (S.W.T.) for giving me strength and determination to do my research. It is by the grace of Allāh that I am able to accomplish the present work. It is my ardent hope that the thesis I wrote will be beneficial to others who possess the interest and passion to study on different types of vinegar. All the methods and techniques to determine the halal status on different types of vinegar had been explained in detail with diagrams and features. I wish one day my findings will contribute to a significant use for the state government especially relating to halal food that produce through fermentation process.

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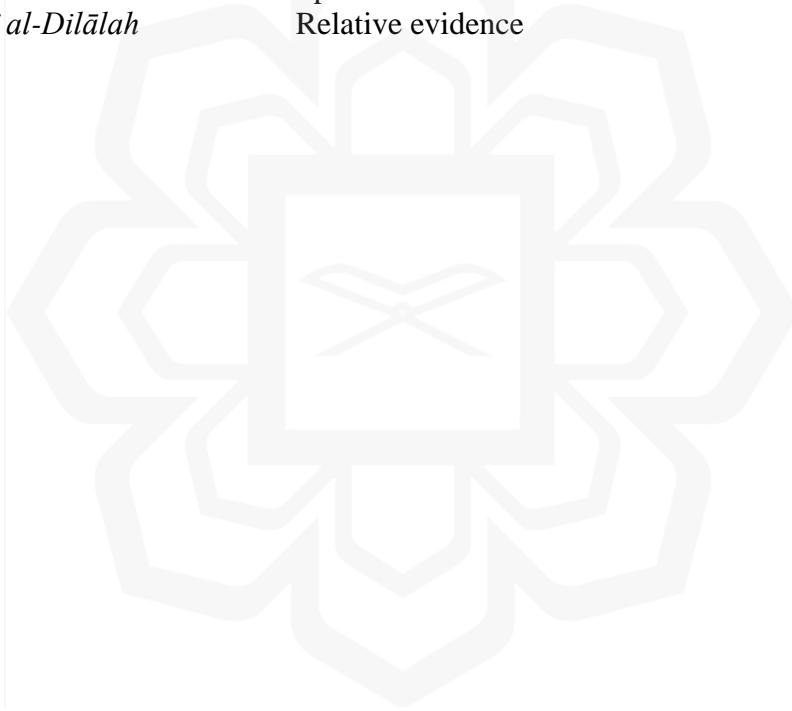
<	Less than
>	More than
≥	Equal and greater than
≤	Equal and less than
°C	Degree Celsius
°F	Fahrenheit
%	Percent
AAB	Acetic Acid Bacteria
BC	Balsamic Condiments
BV	Balsamic Vinegar
BVM	Balsamic Vinegar of Modena
C ₂ H ₄ O ₂ /CH ₃ COOH/CH ₃ CO ₂ H	Acetic Acid / Vinegar
CH ₃ CH ₂ CO ₂ H	Propionic Acid
GCMS	Gas Chromatograph Mass Spectrometer
HPLC	High-Performance Liquid Chromatography
HS-GC-FID	Head space - Gas Chromatography - Flame Ionization Detector
IFANCA	Islamic Food and Nutrition Council America
JAKIM	Department of Islamic Development Malaysia (Jabatan Kemajuan Islam Malaysia)
KCAL	Kilocalorie
L	Litre
LC	Liquid Chromatography
MJFMK	Majlis Jawatankuasa <i>Fatwā</i> Majlis Kebangsaan
MJKFNS	Mesyuarat Jawatankuasa <i>Fatwā</i> Negeri Selangor
mL	Milliliter
MUI	The Council of ' <i>Ulamā</i> ' Indonesia
MUIS	Majlis Ugama Islam Singapura (MUIS)
-OH	Hydroxyl Group
PBUH	Peace Be Upon Him
Ppm	Parts per million
R-COOH	Carboxylic Acid
Sdn. Bhd.	Sendirian Berhad
SAW	<i>Ṣallallāhu 'Alayhi Wasallam</i>
SWT	<i>Subḥānahu Wata 'ālā</i>
USFDA	United State Food and drug Administration
V/V	Volume per Volume

LIST OF GLOSSARY

<i>Al-‘Ādah</i>	Norm
<i>Al-‘Ādah al-Ṣaḥīḥah</i>	A right norm accepted and recognized by <i>sharī‘ah</i>
<i>Al-Aḥwāl</i>	Situation-based
<i>Al-‘Amal al-Qalb</i>	The hearth’s work
<i>Al-‘Amal al-Zāhir</i>	The external work
<i>Al-‘Aṣīr</i>	Fruits extracts, honey and its equivalent
<i>Al-Awlā’</i>	Prioritized
<i>Al-‘Ajām</i>	Non-‘Arab
<i>Al-Dalīl</i>	Evidence
<i>Al-Ḍawābiḥ</i>	General rule of Islamic <i>fiqh</i>
<i>Al-Fasīd</i>	Damage (Uncomplite)
<i>Al-Fatwā</i>	Ruling on a point of Islamic law given by a religious scholar or recognized authority.
<i>Al-Fuqahā’</i>	Muslim jurists
<i>Al-Halal</i>	Permissible
<i>Al-Haram</i>	Forbidden
<i>Al-Ḥiyāl al-Fiqhiyyah</i>	<i>Fiqh</i> Solution
<i>Al-Ḥukm</i>	Ruling
<i>Al-Idām</i>	Condiment
<i>Al-Iḥtiyāt</i>	Precaution
<i>Al-Ijmā’</i>	Consensus of legal opinion
<i>Al-Ijtihād</i>	Independent reasoning
<i>Al-‘Illah</i>	Reason
<i>Al-‘Inabah</i>	Grapes
<i>Al-Inqilāb</i>	Change of characteristics or matter to become a new substance
<i>Al-Inṣirāf</i>	Turn
<i>Al-Intiqāl</i>	Change of one place to another place, or the change from one situation to another situation
<i>Al-Intiqāl al-Fasīd</i>	Invalid changing
<i>Al-Intiqāl al-Ṣaḥīḥ</i>	Valid changing
<i>Al-Iskārah</i>	Intoxication
<i>Al-Istiḥālah</i>	Transformations
<i>Al-Istiḥālah al-Fasīdah</i>	Invalid transformations
<i>Al-Istiḥālah al-Ṣaḥīḥah</i>	Valid transformations
<i>Al-Istihlāk</i>	Decomposition
<i>Al-Istiḥsān</i>	Decorating or improving or considering something good
<i>Al-Istikhbāth</i>	Bad
<i>Al-Istiḥāb</i>	Presumption of continuity

<i>Al-Jāhiliyyah</i>	The age of Ignorance of the ‘Arabs in the pre-Islamic age
<i>Al-Khamr</i>	Every kind of an intoxicating substances that intoxicates and cause mixed-up the brain and mind
<i>Al-Khall</i>	Vinegar
<i>Al-Khall al-Fasīd</i>	Haram vinegar
<i>Al-Khall al-Ṣaḥīḥ</i>	Halal vinegar
<i>Al-Khall al-Shubhah</i>	Doubt vinegar
<i>Al-Khilāf</i>	Contradiction
<i>Al-Ma’f/al- ‘Afw</i>	Permissible
<i>Al-Makān</i>	Place-based
<i>Al-Makrūh</i>	Disapproved
<i>Al-Maṣāliḥ al-Mursalah</i>	Unrestrained interests
<i>Al-Mashaqqah</i>	Hardship
<i>Al-Maṣlahah</i>	Goodness
<i>Al-Mu ‘āṣirah</i>	Contemporary
<i>Al-Mubāḥ</i>	Permitted
<i>Al-Muftī</i>	An Islamic jurist qualified to issue a nonbinding opinion (<i>fatwā</i>) on a point of Islamic law.
<i>Al-Mujtahidīn</i>	Muslim jurist who is qualified and sanctioned to make ultimate legal and religious decisions
<i>Al-Muḥaddithīn</i>	Islamic scholar who specialised in the fields of <i>al-Ḥadīth</i>
<i>Al-Murūnah</i>	Flexible
<i>Al-Mutahallil</i>	Something that has changed
<i>Al-Nabīdh</i>	Traditional beverage made from raisins/grapes or dates steeped in water
<i>Al-Najs</i>	Filth
<i>Al-Nakhlah</i>	Dates
<i>Al-Naṣṣ al-Ṣarīḥ</i>	Clear text
<i>Al-Niyyah</i>	Intention
<i>Al-Qabīlah</i>	Tribe
<i>Al-Qā ‘idah</i>	Method
<i>Al-Qanūn al-Waḍ ‘iyyah</i>	The laws that are devised by the <i>mujtahidīn</i> in determining a new <i>ḥukm</i> (ruling) that is not explicitly stated in <i>al-Qur ‘ān</i> and <i>al-Ḥadīth</i>
<i>Al-Qaṭ ‘ī</i>	Definite
<i>al-Qawā ‘id al-Fiqhiyyah</i>	Legal maxims of Islamic law
<i>Al-Qiyās</i>	Analogy
<i>Al-Rājiḥ</i>	Strong
<i>Al-Ruṭab</i>	Fresh dates
<i>Al-Salaf al-Ṣāliḥ</i>	First three generations of Muslims
<i>Al-Ṣaḥīḥ</i>	Valid/legal/clear
<i>Al-Sharī ‘ah al-Ilāhiyyah</i>	The laws that are explicitly stated in <i>al-Qur ‘ān</i> and <i>al-Ḥadīth</i> and cannot be modified or changed
<i>Al-Shubhah</i>	Obscurity/vagueness/uncertainty/doubt
<i>Al-Shumūl</i>	Comprehensive
<i>Al-Ta ‘āruḍ</i>	Contradiction
<i>Al-Ta ‘ām</i>	Common food

<i>Al-Taghayyur al-Aḥkām</i>	Changing of law
<i>Al-Taḥawwul</i>	Transformations
<i>Al-Taḥawwul al-Fasīd</i>	Incomplete transformations
<i>Al-Taḥawwul al-Ṣaḥīḥ</i>	Complete transformations
<i>Al-Ṭāhir</i>	Clean
<i>Al-Tamar</i>	Dates
<i>Al-Takhallul</i>	Process of acetification.
<i>Al-Takhammur</i>	Process of alcoholic transformation
<i>Takhlīl al-Khamr</i>	Alteration of <i>khamr</i> into vinegar
<i>Al-Thawābit al-Dīniyyah</i>	Default religious laws
<i>Al-Turāth</i>	Islamic classical books
<i>Al-‘Urf</i>	Tradition or custom
<i>Al-Uṣūliyyūn</i>	Islamic scholar who specialised in the fields of <i>fiqh</i> and <i>uṣūl al-fiqh</i>
<i>Al-Wasīṭah</i>	Intermediary
<i>Al-Zamān</i>	Time-based
<i>Al-Zannī</i>	Speculative
<i>Zannī al-Dilālah</i>	Relative evidence



TRANSLITERATION TABLE

ا	a	ز	z	ق	q
ب	b	س	s	ك	k
ت	t	ش	sh	ل	l
ث	th	ص	ṣ	م	m
ج	j	ض	ḍ	ن	n
ح	ḥ	ط	ṭ	و	w
خ	kh	ظ	ẓ	هـ	h
د	d	ع	ʿ	ء	ʾ
ذ	dh	غ	gh	ي	y
ر	r	ف	f	ة	h

Short vowels

اَ	a
اِ	i
اُ	u

Long vowels

آ	ā
إِ	ī
أُ	ū

Diphthongs

أَيَّ	ay
أَوَّ	aw

Double

أَوَّو	uww
أَيَّي	iyy

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF STUDY

Nowadays, vinegar is one of the products that is highly popular around the world, including both in Islamic countries like Saudi 'Arabia and Malaysia as well as Western countries like the United States of America and United Kingdom. Many countries have started to produce vinegar products and other products that utilize vinegar as their main ingredient such as sauce, soy sauce and mayonnaise. Vinegar can be used as one of the measures to improve the way of life and enhance the quality of food (Bhalla and Savitri, 2017). Therefore, vinegar is seen as potential generator of the country's income due to the demand and increase in world's population, with an approximate worth of nearly millions of dollars per year (Tan, 2005).

Radiant Insights Inc. (2018) stated that the global vinegar market is estimated to grow more than 6.74 % from 2017 to 2021 as product types and applications, disposable incomes, and health awareness are continuously across the globe. Europe was the biggest market for vinegar in 2017, followed by North America, Asia Pacific, Latin America, Middle East, and Africa (Radiant Insights Inc., 2018). By the end of 2024, the global vinegar market is estimated to reach about 54,772 mt for balsamic vinegar, 13,427 mt for apple cider vinegar, 14,297 mt for white wine vinegar, 31,720 mt for red wine vinegar, 7,539 mt for rice vinegar, 31,720 mt for red wine vinegar and 8,541 mt for malt vinegar (Persistence Market Research, 2018).

The production of consumer's product especially food and beverages products that utilize vinegar is increasing across the globe and this phenomenon is due to the fact that vinegar is an acetic acid or ethanoic acid, a weak organic chemical mixture that exhibits distinct sour taste that is useful in a lot of food, beverages as well as for other purposes (Nur Yuhasliza and Shaiful Adzni, 2016).

A preliminary survey found that the ingredients and main composition of varieties of food products in the Malaysian market consist of vinegar, among that products such as Tamin Chilli Sauce which is produced by the Zamani Hj. Tamin Sdn. Bhd., Lady's Choice Real Mayonnaise from Unilever (Malaysia) Holdings Sdn. Bhd., A1 Brand's sauce which is produced by Riviera Trading Company (Singapore) and The Original HP Sauce by HP Foods Hayes Midx (United Kingdom). Vinegar is a potent substance which can be utilized for a lot of daily uses; the use of vinegar is not restricted to the food and beverages industry only (Yamani, 1996; Ahmad, 2000), it can also be used as the best alternative for food preservative especially in developing countries where the technology for food preservation is still limited (Solieri and Giudici, 2009; Giudici, Lemmetti and Mazza, 2015).

Besides that, vinegar is also used as ingredient in medicine and cosmetic products, as cleaning agents for kitchen and toilet tools, to kill germs and as Glyphosate alternative in eradicating mites that spoil plants and fertilizer for plants such as vegetables and fruits (Fiola and Gill, 2017). However, along with the increase in demand for vinegar products on the market and the widespread use of vinegar in the global food industry, Muslim consumers are seen to be less sensitive in choosing vinegar products with the *halalan tayyiban* status (Republika, 2018).

Generally, the public perceives vinegar as a halal food which is also part of the prophet's *sunnah*, thus leading to them making a simple conclusion that all vinegar products are halal and can be used or consumed. However, in reality shows the opposite, for example the use of wine vinegar in Malaysia is still widespread as some of the people are confused with regard to its use although the *Mudhākarah* of the *Fatwā* Committee, of the National Council for Islamic Affairs, has been conducted on 4-6 April 2006 and State of Selangor *Fatwā* Committee Meeting has decided that the use of wine vinegar is haram in June 2006 and the issue persists as a polemic among Muslim consumers (MJFMK, 2006; MJKFNS, 2006; *Utusan Malaysia*, 2010).

In addition to that, some of the manufacturers marketed their vinegar products despite not reaching mature fermentation level, leading to vinegar with high level of alcohol, which is haram in Islam. Vinegar is one of the oldest products that is produced through a double fermentation process, in which the process cannot be skipped in the production of vinegar as it plays the main role in the production of vinegar. This process is crucial as it changes sugar to alcohol in the first fermentation process, followed by changing alcohol to become acetic acid in the second fermentation process (Breidt et al., 2013).

As a product that is produced by the fermentation process, vinegar is definitely associated with issues related to alcohol, as all products that go through the fermentation process invariably consist alcohol, whether directly or indirectly (Sanchez, 2008). Alcohol is part of the chemical substance group that is colorless and has a pungent smell which either goes through natural or synthetic fermentation process based on carbohydrates (Mohammad Aizat Jamaludin, 2015).

Alcohol is not only found in *khamr*¹ but alcohol can also be found naturally in fruits and condiments such as vinegar (Anis Najihah and Wan Nadiah, 2014; Anis Najihah et al., 2014). The quality of vinegar that is produced before the ideal period of fermentation will be low in terms of its quality and the percentage of alcohol through the process of becoming vinegar will be affected and this leads to high alcohol content which makes the vinegar is classified as haram. Halal vinegar undergo through the process of *al-tahawwul al-ṣaḥīḥ* (perfect transformation)² which produces vinegar that is free of alcohol and other *shubhah* (doubt) contents.

1.2 PROBLEM STATEMENT

Generally, vinegar is categorized as halal food which is also one of the favourite food of Prophet Muḥammad's (S. A. W). However, there are many types of vinegar on the global market and Malaysian market which are still vague in terms of their halal status. This situation has raised a serious question, whether the vinegar that available in the markets are considered as one of the favourite food of Prophet Muḥammad's or vice versa as some of the vinegar products have the halal logo whereas the others do not have the halal logo but are still available in the Malaysian market and used by Muslim consumers. Some vinegar products are produced by using a haram source such as *khamr* while the others are produced by using a halal source but do not undergo through the *al-tahawwul al-ṣaḥīḥ* (perfect transformation) process which cause high alcohol residue

¹ *Khamr* is the name for every kind of an intoxicating substances whether made from grape, raisins, honey and its equivalent. Anything that intoxicates and cause mixed-up the brain and mind is called *khamr* and every *khamr* is haram. See: Ibn Ḥajar al-‘Asqalānī in *Fatḥ al-Bārī Sharḥ Ṣaḥīḥ al-Bukhārī*. Vol. 10. P. 34-45. In this study, the word *khamr* is used to refer to the intoxicant alcohol produced in the process of *al-takhammur*.

² *Al-Tahawwul al-ṣaḥīḥ* is a concept to determine the halal status of *ṣaḥīḥ* vinegar (halal vinegar) which is *ḥalālan ṭayyiban*, for explanation regarding this concept, please refer to page 116 in the Part 3 Chapter Two The concepts of *al-tahawwul* as an alternative determination of halal status of vinegars.