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**Assessment of the Halal Status of Respiratory  
Pharmaceutical Products in a Hospital**Noorizan Abd. Aziz<sup>a\*</sup>, Hani Majdina<sup>b</sup>, Yahaya Hassan<sup>c</sup>, Hanis Hanum Zulkifly<sup>d</sup>, Mohd Shahezwan Abd Wahab<sup>e</sup>, Mohd Sallehudin Abd Aziz<sup>f</sup>, Noorfatimah Yahaya<sup>g</sup> and Hadeer Akram AbdulRazzaq<sup>h</sup><sup>a,c,d</sup>Faculty of Pharmacy, Universiti Teknologi MARA, Puncak Alam Campus, Malaysia<sup>b,h</sup>School of Pharmacy, Universiti Sains Malaysia, 11800 Minden Pulau Pinang<sup>f</sup>School of Language Studies & Linguistics, Universiti Kebangsaan Malaysia<sup>g</sup>Advanced Medical & Dental Institute, Universiti Sains Malaysia

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**Abstract**

Respiratory pharmaceutical products are among the most commonly used products in the hospital setting. However the halal status of these products is unknown and has never been investigated before. The objective of this study is to assess the status of these products at a hospital. Halal assessment was based on academic and other websites references. From 132 respiratory products that have been investigated, 11.4% are halal followed by 6.1% of them haram, 10.6% mushbooh and 72.0% are not known in terms of their halal status. All the haram medications are related to the presence of ethanol as the inactive ingredient. No information of inactive ingredients in medication leaflets is the most contributive factor leading to unknown halal status of the medications. In conclusion, cooperation between the government, pharmaceutical manufacturers, religious scholars and health care professionals is suggested in order to achieve a goal towards using halal medications.

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**Keywords:** Respiratory pharmaceutical products; halal status; hospital; active and inactive ingredients

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## 1. Introduction

Muslim communities in Malaysia are concerned with the halal issues in their daily lives including medications. As Muslims, anything ingested or used should be halal as prescribed in the Al-Quran (the holy book for Muslims). There are verses in the Al-Quran that call Muslims to seek '*halalan and toyibban*' in their life. Halal means lawful or permissible based on the Al-Quran. Toyibban means good, clean, hygienic and healthy. The description of *halalan and toyibban* have been explained in the Al-Quran and hadith (talks and acts of the Prophet Muhammad, peace be upon him). Haram means unlawful based on the Al-Quran, while 'musbooh' refers to doubtful of the halal status. (*Halal Haram - Buku Penting Untuk Umat Islam*, 2006; Ismail, 2008; Robin, 2004) In Islam, we are required to avoid any food or medication that originates from doubtful sources.

Respiratory pharmaceutical products or medications are among the most commonly used products in the community and hospital settings. The scope of illness that requires treatment using respiratory medications includes common cold, flu, asthma, chronic obstructive airway disease (COPD), other illness and infections that involve respiratory systems (Charles F, Lora L, & Leonard L, 2011). At present, most of the medications in the market do not have halal logos. One of the reasons is because the Malaysian government has yet to implement the pharmaceutical manufacturers or medication suppliers on the requirement of halal logos or other forms of halal information on their products. Furthermore, references on halal status on specific medications are very scanty. JAKIM, a religious body in Malaysia, is responsible for certifying the use of halal logos to manufacturers on their food, health and cosmetic products and premises, but it does not include medications. Hence, it is a problem for health care professionals and patients to make decisions with regards to the choice of medications. They have the right to know the halal status of the medications. As Muslims, it is our responsibility as 'fardu kifayah' to educate other Muslims in identifying halal status of the medications. Thus, the main objective of this study is to evaluate the halal status of respiratory medications in a hospital.

## 2. Method

### 2.1 Assessment of the Halal Status

Data on respiratory medications were collected at the Drug Information Service (DIS), Department of Pharmacy, after getting the approval from the hospital administrator. Data extracted from medication leaflets of respiratory medications only were used for halal assessment. Almost all medication leaflets of the medications that currently and previously used were archived at DIS. The information's obtained was divided into two categories; active ingredients and excipients or inactive ingredients. An active ingredient is the main substance used to treat an illness, normally only one substance of the active ingredient present in a pharmaceutical product. Many pharmaceutical products have more than five excipients. While excipients are inactive substances that are added to the active ingredient to provide good physical quality such as tablet forming, diluents, flavoring and coloring agents and other added beneficial characteristics to the pharmaceutical products. Other factors such as potentially of being harmful or hygienic preparation were not taken into consideration because these two factors are normally monitored by Drug Control Authority (DCA), Pharmacy Service, Ministry of Health, Malaysia for each medication registered in Malaysia.

Each substance of active ingredient and recipients was assessed on halal status based on the standard references. Information from other websites was used if the information required cannot be found from the standard references (such as *Remington The Science and Practice of Pharmacy*, 2005; Sigma – Aldrich, updated 2012; British Pharmaceutical Codex, 1973 and *British National Formulary*, 2011). It was found that more than one substance was involved in the synthesis of each active ingredient (*Remington The Science and Practice of Pharmacy*, 2005). They are considered halal if each of the substance involved does not originate from animal source and the final products do not contain alcohol. Most of the pharmaceutical sources are obtained from synthetic processes because the products that are obtained from this technique has less impurity or contamination from other undesired substances.

The assessment of halal status does not only apply to the sources involved but also to the synthetic process of active ingredients and excipients. If the sources are halal and the process did not involve haram substances, then the product (active ingredient and excipients) would be categorized as halal. For example, for some synthetic pharmaceutical products, ethanol was used during the processing state. However, if the final product is in a solid state, then the product would be categorized as halal. This is because to become a solid state, it has to undergo several steps including heating or crystallization in which the process will evaporate the ethanol. However, it is considered “mushbooh” if the final product is in the liquid form because of the uncertainty regarding the presence of ethanol. The final product is considered “haram” when the presence of ethanol is stated (refer to Figure 1).

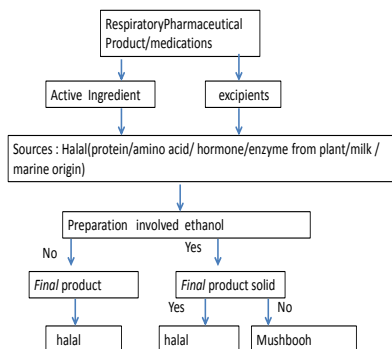


Figure 1. Flow chart on halal or mushbooh categorization of final product in case 1

Sources extracted from animals are categorized as haram because they could be from khinzir (pig) or animals that are not slaughtered according to the Muslim rites (refer to Figure 2). In this case, the final pharmaceutical product is also considered haram even if the synthetic process does not contain ethanol. However, other forms of alcohol such as pentanol, allyl alcohol or cetyl alcohol are not considered as haram because their chemical structures are different to ethanol. Pharmaceutical manufacturers’ use the term ‘alcohol’ which refers to ethanol; and thus any pharmaceutical products or medications that contain alcohol would then be categorized as “haram”. Nevertheless, topical medications which contain alcohol are considered halal if they are used for external application (not for orally) since alcohol can disappear through evaporation.

Products containing sources of unsure origin were considered as ‘mushbooh’ (unsure) for example estrogen, which is categorized as mushbooh because the source can be obtained from animal, synthetic, plant or fungus. This situation also applies to other pharmaceutical sources that are originally extracted from blood components of a human being or an animal. This extracted product would then be propagated (increasing the amount of production through bioengineering process) by using bacteria or animal cells for example in an antibody production. The pharmaceutical product is considered haram for the final product stated contains ethanol. However, the final product is categorized as “mushbooh” even though they do not contain alcohol or available as a solid state (refer to Figure 3). The assessment of the final pharmaceutical products or medications would depend on the active ingredients and excipients. If both substances are ‘halal’, the final product would be halal. If the substance consists of ‘halal’ and ‘haram,’ a serious category would be selected and the final product is haram. If the the active ingredient and excipient consist halal and mushbooh, the final product is ‘mushbooh’.

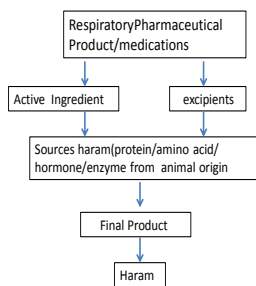


Figure 2. Flow chart on halal categorization of final product in Case 2

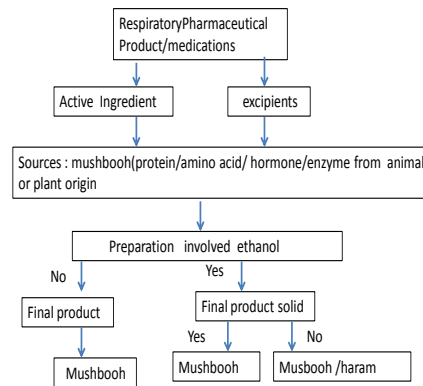


Figure 3. Flow Chart on Mushbooh or haram categorization of final product in Case 3

Note: the final product contains ethanol is categorized as haram

### 2.2 Statistical Analysis

The data collected was analysed using SPSS version 18. Descriptive analysis involving frequencies, percentages were used to present the results of the analysis. Final assessments of respiratory pharmaceutical product are shown in Table 1.

### 3. Result

Total respiratory pharmaceutical products available in this hospital during the period of the study were 132; out of this, only 11.4 % are halal, followed by 6.1% and 10.6% which are ‘haram’ and ‘mushbooh’ respectively. More than half of the products (72.7%) are considered as an unknown status as shown in Table 1.

It can be seen that about half of total active ingredients are halal (51.6%), followed by unknown origin (33.9%) and ‘mushbooh’ (14.5%); none of them is categorized as ‘haram’. Majority of inactive ingredients are halal and only one inactive ingredient or excipient categorized as ‘haram’ which is ethanol. It was found that 8 out of 132 of respiratory medications contained ethanol as tabulated in Table 1. The list of ‘haram’ respiratory pharmaceutical products is described in Table 2.

Table 1 Final assessment of the respiratory pharmaceutical products

	Assessment				Total
	Halal (%)	Haram (%)	Mushbooh(%)	Unknown (%)	
Active ingredient	32 (51.6)	0 (0)	9(14.5)	21 (33.9)	62 (100)
Inactive ingredient	72 (64.9)	1(0.01)	13 (11.7)	25 (22.5)	111 (100)
Product	15 (11.4)	8 (6.1)	14 (10.6)	95 (72.0)	132 (100)

Table 2 List of ‘ haram’ respiratory pharmaceutical products

Generic name	Brand name	Dosage form	Product assessment
Astemizole	Hismanal	Suspension 1mg/ml	‘Haram’
Astemizole	Hismanal	Suspension 2mg/ml	‘Haram’
Beclomethasone	Qvar Inhaler	Inhaler	‘Haram’
Budesonide	Budesonide Aerosol for inhalation	Aerosol for inhalation	‘Haram’
Ciclesonide	Alvesco	Inhaler	‘Haram’
Clarithromycin	Klacid	Pediatric syrup suspension	‘Haram’
Dexchlorpheniramine	Polaramine	Syrup	‘Haram’
Ipratropium Bromide	Atrovent	Inhaler	‘Haram’

#### 4. Discussion

From the findings, this study has shown that these ‘haram’ medications were due to the presence of alcohol or ethanol. Products that contain alcohol but the final product is in a solid state was considered as halal as long as other sources do not contain ‘haram’ or ‘mushbooh’ substances. More than half of the products could not be evaluated because the pharmaceutical manufacturers only stated the content of the active ingredients but not the excipients/inactive ingredients in their medication leaflets. Many local pharmaceutical manufacturers were not keen to provide full information on inactive ingredients of their products, probably because they want to keep that information as confidential to avoid competition among other pharmaceutical manufacturers. Ministry of Health should implement a regulation to ensure that pharmaceutical manufacturers list all the active and inactive ingredients on the leaflets of their products. In other situations, the researcher also could not do the assessment even though information on

the active and inactive ingredients was stated in the medication leaflet but they could not be evaluated because their information could not be found or too scanty from the references for the assessment.

Based on the above verse from the al-Quran, ‘haram’ or ‘mushbooh’ substances are allowed in moderate amount if there is no other alternative and in emergency cases based on the Surah Al-Baqra Verse no: 173 (Shaykh Mufti Muhammad ibn Adam,2003).

إِنَّمَا حَرَّمَ عَلَيْكُمُ الْمَيْتَةَ وَالدَّمَ وَلَحْمَ الْخَنزِيرِ وَمَا أُهْلَ بِهِ لِغَيْرِ اللَّهِ فَمَنْ اضْطُرَّ غَيْرَ بَاغٍ وَلَا عَادٍ فَلَا إِثْمَ عَلَيْهِ إِنَّ اللَّهَ غَفُورٌ رَّحِيمٌ

(2:173)

He has only forbidden you dead meat and blood and the flesh of swine and that on which any other name has been invoked besides that of Allah but if one is forced by necessity without willful disobedience nor transgressing due limits then is he guiltless. For Allah is Oft-Forgiving Most Merciful. (2:173), Tafsir Ibn Khatir. (2009).

However, some of ‘haram’ medications that were found in this study such as suspension and syrup were cough mixtures which usually were not used in the emergency setting. It is usually used in minor illnesses to relieve symptoms of upper respiratory congestion (such as common cold) and perennial nasal allergies. (Charles F, et al., 2011) Similarly, in the case of inhalers, the types of inhalers that are being assessed in this study for example MDI Beclomethasone and MDI Budesonide are used mostly for maintenance and prophylactic treatment of asthma, (Charles F, et al., 2011). Presently, there are many other respiratory medications that are not categorized as ‘haram’ but can be used for cough, common cold and asthma. If halal products are available and do not contain alcohol, then it is highly recommended to use those products.

For some situations further assessment is required for example castor oil as an inactive ingredient that originates from plant but the actual preparation of castor oil also contains up to 10% fixed oil which originated either from plant or animal or both sources. In this situation, the researcher would classify the final product as ‘mushbooh’. Lactose (inactive ingredient) is a ‘halal’ substance because it originates from milk but some of the preparation processed involved the use of bones or bone related substances that are categorized as ‘mushbooh’. Other mushbooh substances found in this study were magnesium stearate, propylene glycol, polysorbate, raspberry flavour, norflurane, beclomethasone dipropionate betamethasone disodium phosphate and budesonide. (Remington, *The Science and Practice of Pharmacy*,2005).

Islam is a simple and easy religion to follow, if there is an emergency or life saving situation the use of ‘haram’ medication is allowed in moderate amount (Muhammad Saleh Al-Munajjid, 2004). However, we need to have Muslim health care professionals together with Islamic scholars to develop guidelines when referring to emergency or life saving situations. Actually, ‘haram’ medications can be avoided because it only contributes a small portion of the total medications as illustrated in this study.

Based on the above scenario, we should consider taking this issue as a serious matter. Awareness on the ‘halal’ medications must be developed among all health care professionals since majority of Malaysian patients that seek treatment are Muslims. Muslim academicians, health care and other professionals should produce accessible ‘halal’ references on specific medications for the public. Universities should highlight knowledge on ‘halal’ medications in the academic curriculum for future

health care professionals. The hospital administrator has to appoint at least a Muslim pharmacist to ensure medications supplied to the hospital suitable for Muslim patients based on their religious requirements. The government particularly Ministry of Health together with JAKIM should take steps to ensure that pharmaceutical manufacturers use halal active and inactive ingredients for their pharmaceutical products. All chemical substances that are used for medication should adhere to quality control and Islamic guidelines before applying for 'halal certification'. This task is possible to achieve which has been proven by Chemical Company of Malaysia Berhad (CCM), which some of its health products (such as vitamins) have halal logos (Shafie S, 2006 and Omar A. R, 2009).

## 5. Conclusion

As a conclusion, all kinds of activities that are related to halal medications such as educating professionals and community should be enhanced. Support from the government, non-government bodies or associations and professionals are necessary to ensure Muslims received halal medications.

## 6. Limitation

Assessments of the substances/products are based purely on ingredients stated in the medication leaflets. If the pharmaceutical manufacturers did not state all the ingredients used in their products, this also would affect the halal assessment. Whether, the above mentioned haram medications are still be given to patients and halal status of utensils, equipments or machineries used by the pharmaceutical manufacturers were not evaluated because they are beyond the scope of this study.

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