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**ALOESWOOD IN; HADITH, CURRENT DISTRIBUTION AND
TREND OF RESEARCH BASED ON PMC**

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Abstract

Regarding the topic of clothing in text of hadith, perfumery has a significant fraction as a complementing element to the adornment, which amongst scenting items mentioned in the scripture is aloeswood. Aloeswood is actually the fragrant dark resinous parts harvested from the heartwood and roots of the plant *Aquilaria malaccensis*. This precious fragrance wins hearts of the riches, being a big population of them are Muslims presumably consume it in honour to the noble status it secures in the divine text. Initially, this study relies on textual analysis of classical books pertaining to aloeswood in hadith, as well as latest reports on distribution of its producing species. Furthermore, it conducts a bibliometric analysis of the researches on it based on the archive of PubMed Central® (PMC) from 2015 – 2019. The analysis provides quantitative and qualitative assessments to study the latest trend of research of *Aquilaria malaccensis*. This study finds that the Arabs have been considering aloeswood as the best type of agarwood, which unfortunately its providing plant is categorised as critically endangered. Generally, the trend of research demonstrates concerns on medicinal potential unless one which directs its attention to future conservation for the species. This paper suggests a timely act of devotion in a form of abstinence from utilizing aloeswood, instead of blindly following the divine recommendation.

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Keywords: Aloeswood, hadith, current distribution, trend of research, PMC.



1. Introduction

In order to unveil the mentioning of aloe wood in text of hadith, this paper chooses two sound narrations. These hadith are deemed arguable among Muslims for they are compiled in reliable references, being the first is of both Ṣaḥīḥ al-Bukhāriy and Ṣaḥīḥ Muslim, while the second is of Ṣaḥīḥ Muslim respectively. Other references irrespective of being classical or contemporary are helpful to define the know-what about aloe wood. Regarding the latest trends of papers pertaining to the aloe wood-producing species, the PubMed Central® (PMC) the U.S. National Institutes of Health's National Library of Medicine (NIH/NLM) is chosen as a reliable entity for its reputation as a compiler for the cutting-edge researches contributing to its particular concern. In fact, it is a free full-text archive of biomedical and life sciences journal literature (PMC: US National Library of Medicine, National Institute of Health, n.d.)

Prior to this study on trend of researches on plants mentioned in Muslim divine scripture, is a paper in Malay titled 'Kekerapan Penerbitan Di SCOPUS Mengenai Flora-flora Dalam Al-quran dan Al-hadith' (translated 'Frequency of Publication On Plants Mentioned in Al-quran and Al-hadith in SCOPUS Indexed') by Mohd Asmadi Yakob et al. The paper opts for the database of SCOPUS to study the frequency and trend of research on certain plants mentioned in the Holy Qur'an and Prophetic Hadith namely; date, olive, fig, pomegranate, Christ's thorn jujube and black cumin. The study concludes that various sub-specialty divisions of science have a predominant and significant presence in the research (Yakob et al., 2016).

1.1. Aloe wood Stands Out Among Agarwood In Hadith

Agarwood has been known widely in Arabic as al-ʿūd and ʿūd al-bukhūr, irrespective of other names the Arabs use to point to this type of fragrant wood; al-mandal, al-ʿūd al-hindi, ʿūd al-nadd, al-ʿūd al-khāmm, al-ʿūd al-jāff, al-ʿūd al-ṣanfī. Meanwhile, another Arabic name for it is ʿanjūj, ʿalanjūj, yalanjūj or ʿalanjāj; depends on the dialect each Arab community is accustomed to. After all, the name of the fragrant wood within the fraternity of medieval physicians is ʿūd al-ṭīb (al-ʿIsrāʿīliy al-Qurtūbiy, 1940; Ibn Manẓūr, 2003). On the other hand, the wood is mentioned as the name al-ʿaluwwa instead of al-ʿūd in two distinguished narrations of hadith scripture. The first is as reported by ʿAbū Hurayra:

Allah's Apostle said, "The first group (of people) who will enter Paradise will be (glittering) like the moon when it is full. They will not spit or blow their noses or relieve nature. Their utensils will be of gold and their combs of gold and silver; in their incense releasing al-ʿaluwwa (aloeswood) will be used, and their sweat will smell like musk....."

(al-Bukhāriy, 2000; al-Naysābūriy, 2000)

While the second is reported by Nāfi' as he said that:

When Ibn Umar wanted incense burning he got it from al-ʿaluwwa (aloeswood) without mixing it with anything, or he put camphor along with aloe wood and then said: "This is how Allah's Messenger (may peace be upon him) burned incense".

(al-Naysābūriy, 2000)

The former hadith enumerates the rewards which will be bestowed upon the dwellers of paradise, being one of the blessings is aloe wood. Its occurrence in paradise in the Hereafter denotes the noble status

the wood does secure in this Worldly life. Credibly, the divine scripture does promise the worshippers with the conveniences that are familiar to their current life, and does not enumerate the rewards which are total alien to them. Not surprisingly, aloeswood did exist within the consumption of people in the lifetime of Prophet Muhammad as revealed by the latter hadith.

In terms of the origin of the word al-`aluwwa, there are three theories presented by medieval scholars. The first is al-`Abū Sa`īd al-`Aṣma`iy, `Abd al-Malik ibn Qarīb (d. 215H / 830AD) as he opined that it is a loanword from Persian. While the second is `Abū Maṣṣūr al-Baghdādiy, `Abd al-Qāhir ibn Ṭāhir (d. 429H / 1037AD) stated that it is a loanword from Indian language indicates to a type of agarwood (as quoted in Ibn Manẓūr, 2003). On the reverse, al-Zumakhshariy (1997) (d. 538H / 1144AD) stressed that the word is Arabic deep-rooted points to the best type of agarwood.

While the consumption of the type al-`aluwwa is stated clearly in text of hadith, the utilisation of agarwood as a genus consists of many types on the reverse is not mentioned directly. The consumption of agarwood as general can only be construed from hadith on al-sikhāb necklace as narrated by Ibn `Abbās, being an excerpt from its ending is:

“(among them) a woman gave her hoop earrings and a sikhāb (scented wooden necklace).”
(al-Bukhāriy, 2000)

As well as an excerpt of the ending of another hadith narrated by Abū Hurayra:

“So al-Ḥasan ibn `Aliy got up and started walking with a sikhāb (scented wooden necklace) around his neck”.

(al-Bukhāriy, 2000; al-Naysābūriy, 2000)

al-Sukhub (sing. sikhāb) is known as wooden necklace consists of a string of arranged beads of sukk (a mixture of tar-like material with musk), cloves and seeds of mahaleb cherry or could be substituted with al-`ūd , means agarwood. al-Sikhāb was made necklace for female, and for male children as well (al-Zumakhshariy, 1997; al-Nawawiy, 1996). Meanwhile, a hadith narrated by `Umm Qays ibn Miḥṣan from the Prophet:

“Treat with the al-`ūd al-hindiy, for it has healing for seven diseases”
(al-Bukhāriy, 2000; al-Naysābūriy, 2000)

In fact, al-`ūd al-hindiy in the last hadith is meant for costus, no wonder al-Bukhāriy puts the hadith under the Topic of Sniffing Therapy Using Both Indian Costus and Sea Costus in the Chapter of Medicine. Indian costus bears the binomial nomenclature *Saussurea lappa* (Waly, 2009); whereas sea costus, based on what is defined as white light costus root by Ibn Bayṭār al-`Andalusiy (n.d.) and has sweetness taste as informed by (Ahmad, 2003), seemingly is the species *Arctium lappa* for janglikuth (Quattrocchi, 2014) which yet to be studied. The both are known as ‘kuth’ in India (Nanda Medicinal Plants Exports, n.d.), which later named al-quṣṭ in Arabic as a loanword, as well as costus in English.

Actually, agarwood is the resinous part of wood of many plants fall under agarwood-producing genus the *Aquilaria* (Thymelaeaceae), which grows in a wide blanket of Indomalesia region (Lee & Mohamed, 2016). The reserved Gunung Jerai forest in Malaysia can be a miniature to the wide forest

blanket of the region where trees of the genus *Aquilaria* grow on its lowland not exceeding 305m above sea level (Mohd Nor, Ab. Hamid & Saidin, 2019). To date, there are 22 recognised species of it marked as accepted status by The Plant List (2013), of which 13 are reportedly sources for fragrant resinous woods, and the remaining species are yet to be identified. It is ascertained that currently the preferred agarwood to the markets of the Middle East and India is of the species *Aquilaria malaccensis*. The genus *Aquilaria* has been made official since 1783, and the binomial nomenclature denotes that it is a type specimen for agarwood (Lee & Mohamed, 2016). The modern day Arabs preference to this particular type of agarwood presumably is, as a result from prolonged tradition since the bygone days. Among Malays, aloeswood is named gaharu which has been known among items used in folk medicine (Hussain, 2015). There is historical evidence of international trade in agarwood between the producing tropical South-eastern Asia and the consuming Middle East, as well as the South and East Asian regions of the world (López-Sampson & Page, 2018). Interestingly, for the binomial nomenclature *Aquilaria malaccensis*; the Latin generic name *Aquilaria* means eagle, after its common name in Malacca — eagle wood, while the Latin specific name *malaccensis* means of Malacca, referring to one locality in the natural distribution of this species, as defined by National Parks: Let's Make Singapore Our Garden (2013). In fact, the binomial nomenclature has many synonyms, being the most significant is *Aquilaria agallocha* (Lee & Mohamed, 2016).

1.2. Current Distribution and Potential Extinction of *Aquilaria Malaccensis*

The species *Aquilaria malaccensis* which is considered a distinguished source for aloes wood, is native to Bangladesh, Bhutan, Northeast India, Indonesia (Kalimantan, Sumatera), Malaysia, mainland Myanmar, Philippines, Singapore; Thailand, and Iran, albeit its presence in the latter is uncertain now, as well as Sarawak state of Malaysia. Its existence faces threats from human activities of mining, quarrying, logging and wood harvesting, plus natural disaster of forest fire. The species is categorised critically endangered by (Harvey-Brown, 2018) as quoted by the International Union for Conservation of Nature and National Resources (IUCN). Today, aloeswood remains a high-priced commodity dispersed across the world for many usages; predominantly in medicine, perfumery and incense industry. According to annual report data of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the top ten export/re-export destinations for crude commodity of *Aquilaria malaccensis* between 1995 and 1997 were: Singapore, Taiwan, Hong Kong, Saudi Arabia, United Arab Emirates, India, Japan, Oman, China and Qatar. It was reported that those goods were originated in Indonesia, Cambodia, Malaysia and Vietnam (as quoted in Barden, Awang Anak & Mulliken, n.d.). Based on research attained by van Beek and Phillips (1999) in eight countries, Saudi Arabia and the United Arab Emirates are considered the two main hubs for agarwood meant for processing and consumption, followed by other Asian countries; Singapore, Taiwan, Japan, India, Thailand and Hong Kong which are involved in entrepot trade.

1.3. Trend Of Research On *Aquilaria Malaccensis* 2015- 2019 Based On PMC

Regarding the research attained on the particular source plant for aloeswood, based on the archive of PMC from 2015 to 2019, this study collects the data within its frame pertaining to *Aquilaria malaccensis* and *Aquilaria agallocha*. Indeed, the both are the only binomial nomenclatures used in specifying the species in the archive out of all synonyms to aloeswood plant meant in the hadith. This study records a total

of 19 papers; which 12 of them are under the nomenclature *Aquilaria malaccensis* (PubMed.gov, 2019), and the remained 7 are under the nomenclature *Aquilaria agallocha* (PubMed.gov, 2019).

Based on the collected data, those scholastic achievements are predominantly from Asian countries, whereas the remained small fraction is from its neighbouring continent, Australia. The most contributing countries are Republic of Korea (ROK), India and Vietnam as showed in Table 01, which is arranged according to date of publication. Subsequently, upon unveiling the fields of concern demonstrated, the papers delve on different sub-specialty divisions of medicinal science irrespective of being the conventional or traditional. The phenomenon is reasonable for the PMC is meant for providing list of biomedical and life sciences journal literature. Notably, most papers are contributing to conventional medicine represent by a total of 11 (Hwang & Jung, 2018; Yan et al., 2018; Ismail et al., 2017; Nguyen et al, 2017; Chippa & Kaushik, 2017; Arai, Yamaguchi & Ishibashi, 2017; Sen, Dehingia & Talukdar, 2017; Min et al., 2016; Devi, Begum & Ahmaruzzaman, 2016; Korinek et al., 2016 & Wong, Chin & Perlmutter, 2015). It is followed by a fraction of alternative medicine which contributes 6 papers (Ahn et al., 2019; Ma et al., 2017; Wagh et al., 2017; Lee et al., 2017; Canli, Yetgin & Akata, 2016 & Alam et al., 2017), then a paper concerns on veterinary (Baruah, Malik & Kolte, 2018). Among contributors for the papers on alternative medicine, Wagh et al. (2017) mention that the resinous wood has been utilised generally in Asian traditional medicine, as well as Ahn et al. (2019) who point further regarding its value in relieving the symptoms of various pathologies. In addition, Alam et al (2017) specify the regions of the continent namely; East Asian as well as South Asian, which is the native land for Ayurveda and Tibetan medicines. While Lee et al. (2017) provides further facts about both East Asian and Southeast Asian nations using the wood in their folk medicines for soothing anxiety, pain and inflammation. Whereas Ma et al. (2017) point to its medicinal values as an analgesic and a sedative, as well as for the treatment of digestive disorders in Southeast Asia and India. Interestingly, Canli, Yetgin & Akata (2016) reveal that it is one of the ingredients for preparing medicinal Mesir paste which has been used in Turkey since the Ottoman period.

On the other hand, there is 1 paper out of the total 19 papers, demonstrates concern to the ailing environmental condition relating to the species *Aquilaria malaccensis*. The paper which is attained by Indian scholars delves in genetics in an attempt to provide a potential solution as a future conservation for the endangered species (Singh et al., 2015).

Table 01. Latest researches on *Aquilaria malaccensis* or *Aquilaria agallocha* dated from 2015 – 2019 (data collection finished on 3 February 2019).

Species	Total of Papers	Year of the latest 10 publication	Country	Field
(<i>Aquilaria malaccensis</i>) or (<i>Aquilaria agallocha</i>)	19	2019 Nov 2018 Jun 2018 Apr 2018 Nov 2017 Sept 2017 Aug 2017 Aug 2017	ROK & Vietnam ROK India Australia & Malaysia Vietnam, ROK & China Malaysia Vietnam & ROK ROK India Japan	1 st – Natural products 2 nd - Medicine 3 rd – Veterinary 4 th – Chemistry 5 th – Natural products 6 th – Bioscience 7 th – Biomedical analysis 8 th - Alternative Medicine 8 th – Microbiology

		Jul 2017	Taiwan	9 th - Chemistry
		14 Jun 2017	India	10 th – Natural products
		May 2017	ROK	11 th – Chemistry
		Mar 2017		13 th - Rejuvenation science
		12 Aug 2016	India	14 th - Biology
			Turkey	15 th - Alternative medicines
		Jul 2016		16 th – Molecular medicine
		Mar 2016	Taiwan	17 th - Alternative medicines
		3 Feb 2016	India	18 th – Genetics
		3 Feb 2016	India	19 th – Chromatography
			Australia	
		Dec 2015		
		Mar 2015		

Source: PubMed.gov (2019).

2. Problem Statement

In fact, worships and rituals in Islam resemble a call for good governance and reservation for the Mother Earth. The divine orders indicate the environmentally friendly approach; such as water saving, moderate non-vegetarian diet, simple burial for the dead, preventing of cutting trees and hunting wild animals during pilgrimage to name a few. Notwithstanding, those orders are construed by average Muslims as mere worshipping, resulting in considering environmental conservation is not part of divine obedience. On the other hand, there is ignorance of the fact that the jurists consult in terms of declaring decrees on doings, they should take into their consideration the indications of the divine scripture plus the current phenomenon occurs, which contributes to balanced guidance. Such balanced approach is necessary in dealing with the current ailing distribution of *Aquilaria malaccensis*, the providing species for aloeswood

3. Research Questions

1. What is the characteristic of the aloes wood-producing species mentioned in text of hadith?
2. How is the current distribution of the aloes wood-producing species mentioned in text of hadith?
3. What is the trend of research regarding the aloeswood-producing species mentioned in text of hadith based on archive of PMC dated 2015 to 2019?

4. Purpose of the Study

1. To identify the characteristic of the aloes wood-producing species mentioned in text of hadith.
2. To ascertain the current distribution of the aloes wood-producing species mentioned in text of hadith
3. To realise the trend of research regarding the aloes wood-producing species mentioned in text of hadith, based on archive of PMC dated 2015 to 2019.

5. Research Methods

Initially, this study relies on content analysis regarding the two sound hadith mentioning aloeswood. This part involves referring classical and contemporary sources which assist the study to grasp the characteristic of the aloeswood mentioned in the text of hadith. Within this analysis, the binomial nomenclature of the aloeswood-producing species is identified. In addition, this study refers to reports of reliable bodies on its current distribution on Earth. In delving into its further discourse, the study conducts a bibliometric analysis of researches on the aloeswood-producing species dated 2015 to 2019 compiled by the United States-based PMC, of National Center of Biotechnology Information (NCBI). The analysis provides quantitative and qualitative assessments of a database of the PMC on the meant plant within the chosen publication period. Through the quantitative approach, the number of papers attained pertaining to the species is recorded. The qualitative portion of this study focuses on trend of researches attained by the papers regarding contributing countries and their specific fields of concern.

6. Findings

This study finds two sound hadiths clearly mention aloeswood as material for perfumery which indicate the existence of the commodity among the contemporaneous people to Prophet Muhammad. Since the bygone days, aloeswood was known among Arabs as a foreign good brought to them likely from India. Furthermore, this study identifies the most recognised binomial nomenclature for its producing plant is *Aquilaria malaccensis*, which deemed among endangered species now. Subsequently, upon studying on trend of research on the species from 2015 to 2019 based on the archive of PMC, this paper finds a total of 19 papers. Predominantly, the papers contribute to cutting-edge findings for both conventional and alternative medicine. Only 1 out of the total papers contributes to the potential conservation for *Aquilaria malaccensis*. Regarding origin of the researches, Asian countries achieved a lion's share of the contribution, whereas the remained small fraction is from its neighbouring continent, Australia.

7. Conclusion

Notably, aloes wood is mentioned in the text of hadith, which is considered the second divine source in Islam. As relied on the text, aloes wood secures a noble place in the scripture as consuming it is considered following the practice of the Prophet. However, the current reality of the aloeswood-producing species declared as facing gradual scarcity and deemed as endangered species. All humans on Earth especially Muslims as a large fraction of them, should put into their consideration an action balances the inherited recommending for the consumption and the dire need for the plant to be conserved and respected. A timely honour for the species *Aquilaria malaccensis* is in a form of tilting the balance in favour of the sustainability for its nature distribution on Earth

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