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Medical Benefits of Agarwood: A review

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This work reports a review of agarwood oil and its quality determination. It was found that *Aquilaria Malaccensis* is the main species in Indonesia, Thailand, and Malaysia. It's significantly available in Malaysia, Thailand as well as other countries in South East Asia. It is one of the valuable non-timber products in tropical woodland, is a scented wood, whose ethereal attar has been prized in Asia for incense in the tradition, as well as tranquilizers in traditional medicine. Agarwood oil has been widely explicitly used in the aroma, fragrance, attar and traditional medicinal. Its common uses include the treatment of knees joint pain, inflammatory-related complaints, and diarrhea, as well as a tonic, sedative and cardio caring agent. Our aim to provide an overview of the phytochemistry, pharmacological activities, ethnomedicinal use and protection of plant materials from *Aquilaria* spp. as an evidence base to further review its potential use as a source of valuable health ingredients. We believe that many people would wish to discover that what is the actual value that makes it reputed, respected and also the precious wood in the world. The agarwood has distinctive quality or marks; similarly its essential emollient. They are traded at different price according to their grade. Scientific persuade showed that chemical components of agarwood make them flagrant from each other, thus affect their quality. Physical appearances such as odor and color have been used to ranking their classes. This curiosity initiated to attract the researchers and also is essential to ensure the superiority of agarwood oil.

Keywords: agarwood, *aquilaria malaccensis*, Phytochemistry, ethnomedicinal

INTRODUCTION

Back ground

It's fascinating is no admire, considering that agarwood or oud has been around for centuries since the ancient times of the Torah, Gospel, Sanskrit and the Islamic scriptures.

The Prophet Muhammad (peace and blessings be upon him) held the tradition of delousing with agarwood which prolongs in the Islamic world up to this day. The Prophet revealed that agarwood is a divergent item of Heaven in His informing, "The first group of progressive

people who will enter Paradise, will be shimmering like a full moon and those who will follow them, will shine like the most luminous star in the sky. They will not urinate, relieve nature, spit, or have any nasal secretions. There will be of gold, and their sweat will smell fragrance like musk. The aloes-wood will be used in their centers."

The Prophet of Allah (SW) also revealed the plentiful therapeutic acreages of agarwood, which in the particular saying, referred to Sanskrit Oud and its effectiveness in healing pleurisy. The Song of Songs narrates Prophet Solomon (PUH)

as "coming up from the remuneration like a column of smoldering, perfumed with myrrh and exasperate" and there are numerous references throughout this book of the Old Testament to "all kind of incense tree" which popular belief denotes to Oud. The bible mentioned many citations of Oud, including a text in which Jesus (puhb) is said to have been pleasant-smelling with Oud. Agarwood is supposed to bring connection with the inspirational, stimulating the psyche, human body, and consciousness. It is said that supplications rise with the scented smoke of agarwood incense and carry the prayer to the God. The angels are invited to the scent and Oud smoke. That is why Islamic peoples love to burn Oud wood and fumigate their houses on holiest nights, the most spiritual of the weeknights and yearly to them. Histories tell us of the extreme habits of a superfluity of Raja Louis XIV of France, who had the exercise of washing his clothes in Oud (Augustin Thierry, 1985). Agarwood has been associated with the Chinese tradition of Fengshui, a restraint of governing the flow of energy in a specific place and the Oud wood was related to producing good luck and positive energy wherever it is placed (Huong et al., 2002). Agarwood has been traditionally referred to as fragrance wood that's utilized for creating perfumes, incense, attar or expensive herbal medicine. It is also put mainly into use as incense ingredients for heavenly offerings or spiritual prayers.

Apart from these auspicious health remunerations, agarwood and its essential oil has been a vital part of the attar and perfume industry since ages together. It's time to learn the medicinal uses in detail. Aquilaria species has been used Victorian medicine in Thai (Kim et al., 2013) and Korean (Kim et al., 1997). In the ancient healing practice, as well as Chinese treatment to treat various diseases, specifically the illnesses allied with inflammation [(Hashim et al., 2014)]. Agarwood from the Aquilaria species used as the cardiac stimulant, aphrodisiac, carminative, antiasthmatic, astringent remedy, and it has been found effective against diarrhea, dysentery, gout, rheumatism, paralysis, and parasites, and it has been helpful for skin diseases [(Talukdar 2015)]. The Aquilaria species had previously found to possess anti-tranquilizing Huong et al., 2002 and (Yang et al., 2013) anti-neuro inflammatory (Huo et al., 2015). analgesic, anti-inflammatory [(Zhou et al., 2008)], anti-hyperglycemic in vivo Pranakhon et al., 2014). antioxidant, antibacterial (Kim et al., 2013). anti-hyperglycemic in vivo Pranakhon et

al., 2014) and laxative activity in vivo (Hara et al., 2008). The alcoholic compound of *A. malaccensis* stems and bark exhibited cardiotoxic activity (Pant et al., 1980) and (Jayaraman et al., 2014) and cytotoxicity alongside Eagle's carcinoma of the P-388 lymphocytic leukemia and nasopharynx cubicles in vitro (Gunasekera et al., 1981). In a previous phytochemical examination, Ferryl glyceride and Phorbol ester had isolated from *A. Malaccensis* bark (Gunasekera et al., 1981). An aqueous extract showed anti-trypanosomal (Dyare et al., 2014). antibacterial (Dash et al., 2008). and anti-allergic activity in vitro and in vivo (Kim et al., 1997). The study on the composition of agarwood from *A. Malaccensis* using GC-MS revealed the presence of chromones, piquant compounds, sesquiterpenes, monoterpenes, steroids and fatty acids (Jong et al., 2018) It has been stated since 3000 years ago that agarwood was used as Anesthetic to ease and to numb away all type of nuisance. It also relaxes health body tissues and reliefs muscle twinges. The all environmental distinctive essence is in a position to calm one's active brain effectively, for that reason bringing central peace to those that are searching for religious and curative.

Agarwood possesses medicinal benefit that reduced and stabilizes our human body blood pressure. Its anti-inflammatory property works on the smooth muscle of the blood vessel lining which then results in a much more sustained blood pressure. It will find comparable ingredients employed in many antihypertensive drugs to the keep the blood pressure lower.

Feng Shui Benefits of Agarwood

The pleasant aromatic incense released from agarwood was claimed for being able to establish connection towards the three realms. In another word, we're in place to calm our emotions and interact with the God much more smoothly if we use agarwood throughout the prayers. The Yang element of agarwood can echo with our all-natural surroundings; it tranquilizes a space. When the Yang element is greater, the Yin part will relatively become weaker. As a result, it will help us gather high factors of life, for instance, wealth, health, happiness, and wisdom by enhancing the positive energy flow within a living space. Positive energy favours longevity; therefore agarwood is a fantastic present choice for the elderly
<https://www.scentcillo.com/blog/category/scenting-spaces-history>



Agarwood Essential Oil (Alcohol-free perfume base)

Role of agarwood as an incense craft

Other well-liked goods produced from agarwood will be the incense craft. For instance, incense prayer beads and bracelets. Usually, a prayer bracelets consist of about 15 to 18 beads, to put on the wrist. Otherwise, 108 beads string within the neck or perhaps a couple of rounds the wrist. You can count your chant prayers using the beads string, or throughout the meditation. The enchanting scent can distill your beliefs, assisting you getting into the desired state of mind rapidly. As wood is a living material in nature, it has "memory" to absorb whatever atmosphere and influence occur about it. Therefore, you'll understand that the wood will alter color and its texture over time whenever you put on long enough. In my encounter, it requires a minimum of 1 year to turn out to be extremely all-natural, darkened wood color. The elegance scent might be enhanced or deteriorated, depends on the owner who wears it. When the owner is usually peaceful, pleased, loving and caring, the wood will turn out to be shiny and healthy following some time. Nevertheless, when the owner is usually furious, poor tempered, jealous, unfavorable, extermination and so on, it will get dull, and the greatness will fade away quickly.

Brighten up the mind and enriches the power of thinking

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The mind is dexterity of thought, consciousness, intellect and one's ability to think, sense and reason. Human thoughts are the first move to his actions. The power of thinking would always be healthy and confident only when a man has a clear mind deprived of wild ideas. Known as the inner part of a body of sentience or consciousness in whole-body healing systems, the mind is often termed as electricity generated from the power station called as soul, which is the only reserve of astuteness, and it glows with its light. When a person has clarity of mind, his minds never wander around, and it starts focusing only on the right with the kind of consciousness it has acquired from the soul.

The heartening fragrance of agarwood has the power to invigorate the mind with mental clarity and drives in inner sentience. Inhaling two drops of agarwood oil by adding it to diffuser can assist in driving away negative energies, alleviating apprehension, enhancing alertness, increasing the sense of strength, bringing in tranquillity, augmenting intellectual functioning and strengthening the nervous system. This can also support improving the human power of creative thinking. It is mainly because original thoughts strike the mind when it is free from worries, anxiousness, and negative feelings. This way agarwood can help everyone in a family to think better may be in performing duties better in the office, to cook innovative food varieties, to learn and understand better.

Health Benefits of Agarwood

Brighten up the mind and enriches the power of thinking

Agarwood helps to increase appetite by acting on gastric juices and liver functions. It helps in abdominal distension and contributes to release the wind from the intestines. Thus, it also decreases abdominal pain and cramps that occur due to excess gas in the alimentary canal. Traditional Hindu Families also use it for increasing learning abilities and improving memory. Listed below are few of the health benefits of using agarwood leaves in different forms. Many comprehensive bibliographies and reviews present a useful data about the chemical composition of agarwood as per reports covering work from 1935 to 2011 by Crop watch (Bingfang et al., 2013). The chemical components of agarwood originated from the species *Aquilaria* include sesquiterpenes, chromone, aromatic compounds, terpenes, sesquiterpenes in agarwood can be mainly divided into:

- I. Agarofurans
- II. Agarospiranes
- III. Guaianes
- IV. Eudesmanes
- V. Eremophilanes and
- VI. Prezizananes.

Chemical ingredients

The Agarwood contains volatile oil, among which sesquiterpene ingredients include agarol, α -melo-furan agarospirol, α -agarofuran and β -agarofuran, dihydro α -carbofuran, nor-ketoagarofuran, 4-hydroxydihydroagarofuran, jinkoheremol, 3, 4-dihydroxydihydroagarofuran, α -guaiene, α -bulnesene, kusunol, karanone, dihydrokaranone, oxoagarospirol, guaia-1 (10), 11-dien-15-al, seline-3, 11-dien-9-one, seline-3, 11-dien-9-ol, and many more.

Pharmacological effects (Bingfang et al., 2013)

- The decoction of Chinese Agarwood has a complete inhibition of the human type *Mycobacterium tuberculosis*. It has a strong antibacterial performance on *salmonella typhi* and *S. flexneri bacilli* too;
- The essential oil contained has the functions of anesthesia, pain relief, and muscle relaxation;
- Studies indicated that the agarwood decoction has sedative and anti-asthmatic effects too.

Works as antidepressants

Agarwood leaves tea work as antidepressants. Leaves consist of agarospirol which serves as anti-depressants. It helps to weaken the

central nervous system that causes tension and restore physical health.

Uplifts the emotional quotient:

Agarwood is often honored as a famous tree in the Traditional Chinese Medicine (TCM) for its excellent medicinal and saintly benefit. The Chinese have been called the captivating fragrance of Agarwood oil as "a sweet, thick but balanced scent." Agarwood is often regarded as a different oil of rescue, especially from emotional trauma. It has been said that the therapeutic properties of this oil are highly robust in harmonizing the electrical frequencies of the brain. The Tibetan Monks have used agarwood oil for increasing the inner energy that could pass on absolute tranquillity to the mind and the heart. It is for this cause; agarwood oil has been a part of numerous traditions during spiritual ceremonies and mysterious gatherings. The Buddhism, agarwood is used for clearing away lack of ignorance.

Agarwood leaves also can be used as anti-aging skin

Agarwood leaves can also be for anti-aging skin. Agarwood leaf tea is used to remove mercury from the body, thus decreasing the risk of organic mercury neurological disorders and can prevent skin aging. When toxic mercury in the body can be eliminated with agarwood leaf tea, it makes skin healthy and free of blemishes.

Agarwood oil is the best natural remedy for nourishing the skin from within. With its ability to forage free radicals in the system, agarwood oil fight against the symptoms of aging like wrinkles, marks and fine lines (Rajendra . and Shakti ,2009). Ayurveda beckons agarwood as Kushtanut, means remedy for skin problems. Its given named as Dushta Vranashodhana for its capacities to clean wounds, Krumihara for treating infected wounds, and Kushtahara for sacking impatient and soreness of skin. It is also known as Tvachya for it is instrumental in detoxification of skin.

(file:///F:/Agar%20wood/GH1_Agarwood%20(Chen%20Xiang)%20_%20Chinese%20Herbs%20Healing.html). One drop of agarwood oil and one drop of Lemon oil added to our soap-free cleanser can help in clearing away marks, encouraging blemish-free glow, improving skin complexion and granting a younger and healthy looking skin. It is for these causes agarwood has been a part of various celebrated skin care products including skin lightening creams and soaps. It is also known

as Tvachya for it is useful in detoxification of skin.

Agarwood leaves helps to lose weight

Agarwood leaves contribute to losing unsolicited body weight. If you are overweight, you can consume the tea of agarwood leaf. This has been proven to help our lose weight. We can drink six cups of agarwood leaf tea every day to get the beneficial outcomes.

Agarwood leaves soothe sleep disorders

Agarwood leaf can also relieve sleep disorders. Tea of agarwood leaf, have effects that help to mitigate and reduce the symptoms of stress so that you can deep sleep peacefully and longer. Agarwood tea is meant to be drunk on a daily basis to obtain and maintain long-lasting benefits for health. It is a detoxifier that is a natural and safe way to flush and eliminate harmful toxins from the body. Drink the tea hot or cold; drunker will receive the same health benefits. Many neurological complaints were happened by the accumulation of organic or methyl-mercury in the body, which did not naturally banish. Mercury or methyl-mercury has also been linked to premature aging. Agarwood eliminates mercury from the body system, which reduces the risk of mercury-related neurological disorders and works to prevent the aging of the skin. When the body purges toxicants, this accelerates smooth skin, free of imperfections. Agarwood tea drink does not select what toxins it removes; it only rinses the body of all of them which is a whole property. As a result of this, many people use agarwood tea to eliminate hangovers the feeling of intoxication. When the tea drinks during poisoning or the aftermath, it works in the body to lessen the alcohol in your system. As a weight loss tool, agarwood tea drink is a caffeine-free way to increase energy levels thus taking steps to obtain physical activity faster. It flushes body system to weighty toxins and works to eliminate excess body fat. It is expected an outcome and indicative of the agarwood tea drink operating in our body. The detoxification of flushing that occurs as a result of drinking agarwood tea drink loosens bowels and enables the body to excrement. For centuries, agarwood tea drink has been used to sleep disorders and relax apprehension. The aroma ingredients produced from the leaves has an essential natural calming effect that replaced symptoms of mental stress, thus enabling people to achieve longer and more restful sleep. Nutrients obtained in agarwood tea leaves have been used for

pulmonary better health. Naturally, agarwood leaves take care the circulation of blood in the body system.

When all areas of your body are in healthy circulation, they can function correctly and provide you with natural, caffeine-free energy. Eight benefits of drinking agarwood tea:

- i. Agarwood is a natural detoxifier,
- ii. It's a natural way to replaced harmful toxicants from our body such as mercury).
- iii. Agarwood tea is a natural diuretic to get patient digestive system on "track,"
- iv. It promotes healthy and clear skin,
- v. It helps to control the blood sugar,
- vi. Agarwood tea boosts blood flow,
- vii. It is caffeine and sugar-free,
- viii. Agarwood tea also promotes healthy body weight.

Tiles the way for religious enlightenment

Meditation, congregational prayers, and specific other divine celebrations aim at the realization and oneness with divinity. This is the most complicated chore, as it requires absolute concentration, mental stability, and clarity of the mind to attain the delightful powers.

The heavenly bouquet of agarwood and its oil is said to have psychoactive properties that aid in progressing towards a purifying spiritual journey by inaugurating deep inner peace, consciousness, emotional constancy, real get-up-and-go, increased awareness and enhanced psychological functioning.

Alleviates inflammation including arthritic and rheumatic conditions

Agarwood oil is one of the best Kapha suppressants, which reduced surplus water deposits and toxic compound remains in the body through sweat and urine. It's analgesic, anti-rheumatic and anti-inflammatory attributes and this oil help in relieving inflammation quickly and reducing pain associated with arthritis and rheumatism. Massaging the affected body organs, especially the joints with two drops of agarwood oil, two drops of clove oil with two ml of coconut oil can reduce in clearing blood toxicants, flushing out other impurities, uric acid and salt in the system by promoting frequent urination, reducing pain and soreness and enhancing blood circulation.

Spices up sexual verve

The essential oil of agarwood regularly becomes a new remedy for generative problems with its refreshing aroma and spirited aphrodisiac

properties. Since the old time, enticing agarwood oil has been used for people undergoing sexual issues. As it works as an excellent relaxant that promotes deep and peaceful sleep, treats fatigue, relieves mental stress and accelerate the psychological health, agarwood is often used as an "all in one remedy" for improving vigor and get-up-and-go. Massaging your body with five drops of agarwood oil, five drops of ashwagandha oil, two drops of Sandalwood oil and two drops of lavender oil with ten ml of olive oil can help in influencing soothing the system, better sleep, treating impulsive ejaculation, enhancing the libido, increasing sperm count and for curing erectile dysfunction.

Supports the digestive functions

The digestive, anti-flatulent, carminative and stomachic properties of agarwood oil help in the force out gas in the intestines and stomach and it also prevents the digestive system from building up of gas. Adding one drop of agarwood oil along with one drop of peppermint oil in a cup of mildly warm water and gargling with this medicated solution can help in alleviating lousy breath, tastelessness and nausea. Massaging your tummy with three drops of agarwood oil along with two ml of sesame oil can contribute to supporting the secretion of gastric juices and digestive acids that treat indigestion, bloating, flatulence and intestinal infections.

Other health benefits

Agarwood oil is used in the treatment depression, epilepsy, cirrhosis, hepatitis, fever, gastric cancer, abdominal and lung tumors and nervous system disorders. A literature review of agarwood plant materials showed that they contain mangiferin, genkwanin, sesquiterpenes, iriflophenones, cucurbitacins, terpenoids and phenolic acids and 2(-2-phenylmethyl)-4H-chrome-4 one derivative (Meratate et al.,2016).The crude extracts and some of the isolated compounds exhibit anti-diabetic, anti-allergic, antioxidant, anti-inflammatory, anticancer, anti-ischemic, laxative, antimicrobial, hepatoprotective, effects on the central nervous system, and mosquitocidal properties. Agarwood plant materials are recognized to be safe based on the doses examined. However, the safety and toxicity of the elements, including the smoke from agarwood incense burning, should be further investigated. Future research should be considered towards the bio-guided isolation of

bioactive compounds with proper chemical characterization and observations of the underlying mechanisms towards drug discovery.

Economic prospect of agarwood

After a few experiments, the cultivation of agarwood has been started in Vietnam, Thailand and India. Malaysia, Australia and Hawaii are the new comers in this field. There is a huge potential for the commercial production of agarwood as the present supply of agarwood only fulfills 40 percent of the market demand. The market price for a liter of agarwood oil is around USD 10,00 to USD 14,000 making it the most expensive wood in the world. Therefore, the production of agarwood is termed as the gold mine of the future.

Given the benefits of agarwood, it has a huge business prospect. Agarwood would have a big market with various types of consumers as people of the major religions would use it for their religious activities. Furthermore, the medical use of agarwood would add more demands. As for example, demands for herbal products to lose body weight, improve mental and sexual health and remove sleep disorders are increasing. Finally, as a natural alcohol-free perfume its demands are everlasting especially to the Muslim consumers (Joachim Gratzfeld and Bian Tan 2008.) and (Mamat et al., 2010)

Malaysia has a significant business potential if it cultivates the agarwood. This is because it has strong trading ties with the main importers. The key consumers of agarwood are countries in the Middle-East and Far-East. The two distinguished consumers of agarwood are United Arab Emirates and Saudi Arabia. Moreover, Hong Kong, Taiwan and Japan are another notable key importers of agarwood. Since these countries are the trading partners of Malaysia then it would be relatively flexible for Malaysia to enter their markets by Gerard A. Persoon,

CONCLUSION

The time-honored medicinal use of agarwood plant materials has provided clues to their pharmacological properties. Indeed, agarwood contains a plethora of bioactive ingredients that now sophisticatedly support their use in conventional medicine. Agarwood improves appetite by acting on gastric juices and liver functions. It helps in abdominal distension and contributes to release the wind from the gastric intestines. Thus, it also reduces intestinal inflammation and cramps that occur due to excess gas in the alimentary canal. Even traditional Hindu

Families also use it for increasing learning abilities and improving memory. Maximum agarwood ingredients from different species consisting of many chemical groups such as sesquiterpene, hydrocarbons, monoterpene, oxygenated, monoterpenes and sesquiterpenes nor-terpenoids, diterpenoids, carboxylic acids and others short chain glycols but at the same time individual family have specific features of compound which could be considered as a signature of that species to make disparity profile from others species. In analytical aspects and determination of these mentioned groups of the potential medicinal health's benefit compounds have been increasingly developed. As wild trees of agarwood are critically endangered and sustainable vulnerable, natural and native practices are necessary for the further development and utilization of agarwood as a source of health beneficial compounds.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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AUTHOR CONTRIBUTIONS

Mokhlesur M. Rahman will perform the experiments, analyzed the data, and prepared the manuscript, M.A. Tengku, Abdullah F.M, supervised and edited the manuscript Wan Nik W.B. and Ahmad Zubaidi A. L. reviewed the manuscript.

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