

A MAQASID-BASED BIOPROSPECTING; THE CASE OF AGARWOOD IN THE HALALAN TOYYIBAN PRODUCT DEVELOPMENT

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ABSTRACT

This paper aims to explore the concepts and values of Maqasid al-shariah in bioprospecting. The activities of bioprospecting are not new and have been well established in various industries ranging from pharmaceuticals, and manufacturing to biomineral and nanotechnology. Bioprospecting is the discovery of biodiversity for new biological resources of social and economic value. Although the premises of bioprospecting are known to be closely tied to sustainability and conservation of biodiversity, to the best of our knowledge, there are no discussions on bioprospecting from the perspective of Maqasid. This paper explores this relationship with a focus on agarwood, a non-timber forest product (NTFP) that has been traded for centuries. Over the years, agarwood has been subjected to bioprospecting and is increasingly being used as a material in the development of halal toyyiban products.

Keywords: agarwood, bioprospecting, Maqasid, halal toyyiban, NTFP

1. Introduction

Bioprospecting is the discovery of biodiversity for new biological resources of social and economic value. The activities of bioprospecting are not new and have been well established in various industries ranging from pharmaceuticals, and manufacturing to biomineral and nanotechnology. The premises of bioprospecting are known to be closely tied to sustainability and the conservation of biodiversity. The elements in bioprospecting are also seen to be inherently present in the Maqasid al-shariah (objectives of the Islamic law). Maqasid al-Shariah's five fundamental aspects include protection (*hifz al-*) of religion (*deen*), life (*nafs*), intellect (*'aql*), progeny (*nasl*), and wealth (*mal*); with three descending categories of significance for each aspect namely *dharuriyyah* (essential), *hajjiyyat* (complementary), and *tahsiniyyat* (desirable/embellishment). While many of the elements in bioprospecting and Maqasid al-shariah are overlapping, to the best of our knowledge, there are no discussions on bioprospecting from the perspective of Maqasid despite the potential for its actualization to genuine attainment of bioprospecting principles.

Over the years, agarwood (*Aquilaria* spp.) a type of non-timber forest tree endemic to Southeast Asia and some parts of India and China, has been subjected to bioprospecting. The fragrant resin-infiltrated wood of the agarwood tree has been known to be the most expensive type of non-timber forest product (NTFP). Traditionally, it has been sought after for use in religious and cultural ceremonies but in modern times, the demand is diverted to its use as raw material to extract the oil that is an important fragrance note and fixative in luxury perfumes. Other plant materials such as leaf and white wood from this species are also increasingly being used as ingredients in the development of halal toyyiban products. Currently, the agarwood market trade is estimated to be valued at USD32 billion and expected to double to USD64 billion at the end of 2029 (BOTS team, 2022). However, the immense economic potential of agarwood has long been tainted with issues of biopiracy, poaching, tax evasion, smuggling counterfeiting, and circumventing regulations; all of which are contrary to the tenets of bioprospecting.

Various strategies including the instalment of the international convention such as the Convention on Biological Diversity (signed by 150 government leaders at the 1992 Rio Earth Summit (CBD Secretariat, 2021) have been devised in response to the unmet bioprospecting tenets but many issues remain unresolved. This pointed out to possible missing element in the bioprospecting realm. This paper proposes that the missing element is the Maqasid-al syariah (objectives of syariah) that guide human activities into soulful and meaningful efforts based on the Quran and Sunnah, towards gaining the *mardhatillah* (the pleasure of Allah). Thus, this paper aims to explore the concepts and values of Maqasid al-shariah in bioprospecting with a focus on agarwood and its plant materials.

2. Materials and methods

This article employs a narrative literature review. A narrative review combines the existing evidence relating to the topic to communicate a coherent message to the readers. It is an excellent approach to presenting philosophical perspectives in a balanced manner and stimulating scholarly dialogue about any issue or topic. In contrast to a systematic review that employs detailed, rigorous, and explicit methods, there are no established guidelines for conducting narrative reviews (Green et al., 2006). In this paper, relevant literature relating to Maqasid al-shariah, bioprospecting, and agarwood and its plant material was identified through various database searches. The critical evaluation of the identified literature was then conducted to frame the information into perspective.

3. Results and Discussion

This section discusses the key concepts of bioprospecting (and biopiracy), agarwood and its plant materials and finally the Maqasid al-shariah and its elements in bioprospecting agarwood into halalan toyyiban product development.

3.1 Bioprospecting and biopiracy

Bioprospecting is defined as the exploration of biodiversity for new resources of social and commercial values (Beattie et al., 2010). Bioprospecting is being applied in various sectors, however, the pharmaceutical industry is the best-known sector applying the concept of bioprospecting. Regrettably, bioprospecting is prone to derail into biopiracy which is a disadvantage to the indigenous people who own the intellectual property of such traditional knowledge of the bioresources. Biopiracy can be described as the (mis)appropriation and commercialization of genetic resources and traditional rural and indigenous peoples (Biopiracy Collective, n.d.). Fig.1 showed the premise of bioprospecting that includes among others ethical conduct, sustainability, conservation, benefit sharing and circular economy (Beattie et al., 2010; Potting et al., 2017; Schroeder et al., 2018).

The bioprospecting strategies feed well into the paradigm of circular economy, which is based on 10R strategies of refuse, rethink, reduce, reuse, repair, refurbish, remanufacture, repurpose, recycle, and recovery (Potting et al., 2017). Circular economy practices then handsomely extend into achieving Sustainable Development Goal (SDG) targets including SDG 8 (Decent Work and Economic Growth), SDG 12 (Responsible Consumption and Production), and SDG 15 (Life on Land) (Schroeder et al., 2018).



Fig. 1: The premise of bioprospecting
Source: Author's own

3.2 Agarwood as a non-timber forest product

Agarwood has been known and used across cultures and generations. It has a long and rich history that dated back to 1400 B.C.E (Lopez-Sampson and Page, 2018) with its presence being manifested in the religious texts, classical literature, history of trade and cultural experience. Agarwood has different names based on localities, some are derived from ancient languages and evolved based on dialects of the traders. Fig.2 showed the different names of agarwood that suggests its presence across cultures.



Fig. 2: Agarwood and its names across various cultures
Source: Author's own

Besides its prized fragrant resin primarily used in religious, cultural and perfumery, agarwood and its various parts of plant materials have also many uses such as shown in Fig. 3. Bioprospecting contributes to the discovery of the biological effects of different parts of the agarwood tree. These biological effects range from antimicrobial effects to anticancer effects; and some effects have their ethnopharmacological evidence (Hashim et al., 2016).

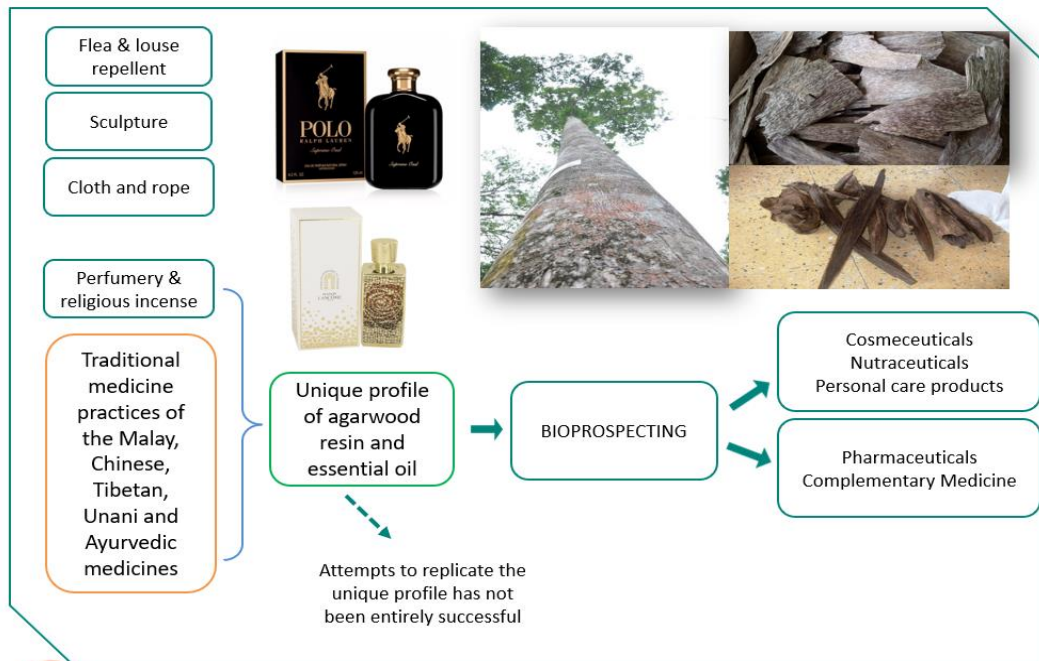


Fig. 3: Different uses of agarwood including its bioprospecting towards the development of products
Source: Author's own

In modern trade, materials from the agarwood tree are categorized as non-timber forest products (NTFP). The term NTFP is defined as 'all biological materials, other than timber which are extracted from forests for human use' (de Beer & McDermott, 1989). Recently, the International Tropical Timber Organization, ITTO (2021) recognized agarwood as a 'promising' NTFP together with damar resin and acai (in comparison to 'established' NTFPs like bamboo, rattan, and Brazil nut) (Blaser et al., 2021)

Being an NTFP, agarwood has a close relationship with communities living in the forest (indigenous people; *Orang Asli*). Several tribes are known to be agarwood collectors who are connected to the agarwood commodity chain through their engagement in collecting expeditions with traders who depend on the ethnic groups' traditional ecological knowledge (TEK) about agarwood.

It is important to note that the NTFP categorization of agarwood is also extended to the materials obtained from cultivated agarwood (from the plantations) which has increased in acres in response to the dwindling number of agarwood trees in the natural forests. As a commodity, agarwood is regulated by CITES (Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), whereas as a legislative framework, it is based on a cap-and-trade system (Le, 2018).

3.3 Elements of maqasid al-shariah in bioprospecting agarwood into halalan toyyiban product development

Maqasid al-shariah can be defined and translated into the objectives of the Islamic law, which connotes a value system for the *maslahah* (benefit) of the people guided by the teachings in the Quran and Sunnah (Auda, 2010; Laldin, 2007). The scholars of Islam described Maqasid al-Shariah's five fundamental aspects as protection (*hifz al-*) of religion (*deen*), life (*nafs*), intellect (*'aql*), progeny (*nasl*), and wealth (*mal*); with three descending categories of significance for each aspect namely *dharurriyah* (essential), *hajjiyat* (complementary), and *tahsiniyyat* (desirable/embellishment).

Table 1: Elements of maqasid al-shariah in bioprospecting agarwood into halalan toyyiban product development

Elements of Maqasid al-shariah	Bioprospecting agarwood into halalan toyyiban Product Development
Preservation of wealth (<i>mal</i>)	Circular economy, green economy and attaining socio-economic benefits
Preservation of intellect (<i>'aql</i>)	Conservation of traditional knowledge and intellectual rights
Preservation of progeny/posterity (<i>nasl</i>)	Conservation of the forest and its environment as a means of livelihood for the forest-dependent communities
Preservation of religion (<i>deen</i>)	Ethical and faith-guided conducts of agarwood trade (free from wrongdoings of illegal poaching, counterfeiting, smuggling, tax evasion, biopiracy and inequalities in its value chain)
Preservation of life (<i>nafs</i>)	Agarwood stakeholders to play their roles with <i>Amanah</i> (trust) to bring overall real benefits to the people and environment

Source: Author's own

The premises of bioprospecting (sustainability, conservation (of environment, livelihood, traditional knowledge, intellectual rights of indigenous people and nation, green economy, circular economy, socioeconomic benefit-sharing, and ethical conduct) are indeed noble and inherently overlapped with the principles of Maqasid al-Shariah. The missing piece identified is the actualization of these Maqasid principles in doing the bioprospecting. A reconfiguration or rebooting of bioprospecting to fully incorporate and apply the Maqasid approach as the mould of bioprospecting would be more meaningful as all actions shall then be guided by the Quran and Sunnah.

For instance, the Maqasid element of preservation of wealth (*mal*) shall guide the actions in the circular economy, green economy and in attaining socio-economic benefits. The element of preservation of intellect (*'aql*) shall guide the conservation of traditional knowledge and intellectual rights. The element of preservation of progeny (*nasl*) shall guide the conservation of the forest and its environment as a means of livelihood for the forest-dependent communities. The element of preservation of religion (*deen*) shall guide and purify the conducts of agarwood trade which until now still being tainted with illegal poaching, counterfeiting, smuggling, tax evasion, biopiracy, and inequalities in its value chain. The element of preservation of life (*nafs*) shall guide all actors in the agarwood sector to play their roles with *Amanah* (trust) to bring real benefits to the people and environment.

4. Conclusion

Maqasid-based bioprospecting of agarwood shall infuse the soul and consciously connects man (human being as the *Khalifah*) and Allah s.w.t., the Creator of the universe, leading to the genuine achievement of the premises of bioprospecting. Guided and guarded by the Maqasid-based bioprospecting, the development of halalan toyyiban products from agarwood materials shall then be a meaningful one, that truly benefits humankind (here and the hereafter) while safeguarding the natural resources.

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