

The legal protection of *Taxus sumatrana* for Indonesia's traditional herbal medicine knowledge

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Abstract

The *Taxus Sumatrana* plant has the potential to convert cancer, but the existence of this medicinal plant is still less popular in the community. Only some people, such as the Jambi people of Indonesia, are aware of the plant's properties and utilize it for herbal medicine. The Indonesian government has demonstrated its commitment to the protection of biodiversity and traditional knowledge through progressive policies. One important milestone is the ratification of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (Nagoya Protocol). This protocol creates an international framework to regulate access and utilization of genetic resources, ensure fair benefit sharing, and strengthen the protection of traditional knowledge. This research uses Normative research methods by analyzing several national and international regulations so that it is found that the Indonesian Government has protected *taxus sumatrana* in general but no specific regulations have been found that regulate *taxus sumatrana*.

Keywords: Protection, *Taxus sumatran*, traditional herbal medicine knowledge

Introduction

Indonesia is a biodiversity country that is second only to Brazil in terms of mega biodiversity (approximately 30,000 species). Indonesia also has a wealth of traditional knowledge in the field of medicine that is very much and diverse. Biopharmaceuticals are one of the most needed potentials for humans. *Taxus sumatrana* is a plant that contains taxane diterpenoid or paclitaxel (taxol) which is anti-cancer ^[1]. *Taxus sumatrana* is a protected species based on the Minister of Environment and Forestry Regulation Number: P.106/MENLHK/SETJEN/KUM.1/12/2018. *Taxus sumatrana* is protected because it has a limited distribution, grows slowly, and has many obstacles to its regeneration. In addition to being protected, *Taxus sumatrana* is valuable for its anti-cancer properties. The *Taxus* genus, including *Taxus sumatrana*, contains Paclitaxel, which is effective against cancer. *Taxane* belongs to the group of mitosis inhibitors and is used both in monotherapy and in combination with other anti-cancer agents. Taxane extracted from the bark, leaves, branches, and twigs of the *Taxus* genus can be used as chemotherapy against breast cancer, uterine cancer, and other cancers. Research has even begun for non-cancer diseases such as Alzheimer's, Kaposi's sarcoma (tumor of blood vessel tissue), and renal sclerosis ^[2].

Although the *Taxus Sumatrana* plant has the potential to treat cancer, the existence of this medicinal plant is still less popular in the community. Only some people, such as the people of Jambi Indonesia, have known the efficacy of the plant and utilized it for herbal medicine. Traditional Jambi people use *Taxus sumatrana* as an herbal tea that is believed to treat wound infections, while the tree trunk is used as a material for making household goods. *Taxus sumatrana* is Endangered, an indicator of a large population decline over the past 25 years that is still ongoing ^[3]. Research from the Centre for Plant Conservation and Botanical Garden Researcher M. Muhaimin argues that the decline of the *Taxus sumatrana* population in Indonesia is thought to be due to massive deforestation in Sumatra Island, its habitat. In other words, due to the friction between plantations and protected areas.

Utilization of *Taxus sumatrana* is processed as an anticancer drug traditionally by brewing the material from twigs and leaves ^[4]. So far, the traditional knowledge that has developed in the community in the use of genetic resources has continued to develop for generations in the community. Sometimes it has even become part of their customs. Some traditional knowledge systems have been codified but many are not. To protect traditional knowledge from utilization by irresponsible parties, legal protection of community traditional knowledge needs to be done, including protection of community traditional knowledge on the utilization of genetic resources. There are several reasons why it is necessary to develop protection for traditional knowledge, including considerations of justice, conservation, maintenance of culture and traditional practices, prevention of appropriation by unauthorized parties of the components of traditional knowledge, and development of the use of traditional knowledge interests. In addition, of course, to preserve the traditions that exist in a community ^[5].

Many indigenous peoples and local communities utilize SDGs for medicinal purposes, fabric production, food production, etc., which they have been doing for generations. Their knowledge of the SDGs utilized for their various needs is considered traditional knowledge. Traditional knowledge is found in all areas of life relevant to an indigenous community or local community. It mainly concerns the fulfillment of basic needs for survival such as medicine and treatment, food, and agriculture. The diverse SDGs and traditional knowledge related to the utilization of SDGs need to be preserved and developed so that they can be utilized sustainably as development resources for the greatest prosperity of the people as mandated in the Preamble of the 1945 Constitution of the Republic of Indonesia. However, the richness of Indonesia's SDGs has attracted many companies from developed countries to take part in their utilization. Indonesia still does not have a comprehensive national law to protect national SDGs including protecting traditional knowledge on the utilization of SDGs. So the formulation of the problem in this research is the protection of *Taxus Sumatrana* on Indonesian traditional knowledge.

Discussion and Result

Legal Protection of Traditional Medicinal Knowledge from Indonesia

Indonesia has a very important position in the world's biodiversity because Indonesia is included in ten countries that are rich in biodiversity because Indonesia has a lot of biodiversity or mega biodiversity) as well as Traditional Knowledge that develops into Traditional Communities in this case Indonesia does not prohibit patent protection of products and processes that use natural materials and/or Traditional Knowledge and mention the source of genetic material used in protection efforts. Traditional knowledge has emerged as a new problem in Indonesia because until now Indonesia has no regulations that specifically regulate the protection of Traditional Knowledge. While in its development in the community Traditional Knowledge is very widely used and has even been widely recognized by foreign parties/countries.^[6]

Providing legal protection of Traditional Knowledge is very important because Indonesia as a developing country has an abundant wealth of traditional knowledge. It is unfortunate that Indonesia has not been able to maximize the provision of legal protection against Traditional Knowledge and has not been maximized in concretizing its potential due to weak regulations, lack of knowledge, and the ability of the community to develop existing potential. Indonesia when compared to other developing countries is far behind in the recognition of the protection of Traditional Knowledge^[7], especially against developed countries that have more qualified financial and manpower capabilities in addition to the technological sophistication they have. As a result, Indonesia can only be utilized by developed countries under the guise of conducting research, they can claim their discoveries against Indonesian traditional knowledge^[8].

The concept of traditional knowledge is closely related to the region as the owner of traditional knowledge, so it should be the local provincial, and district/city governments hold important duties and functions in its protection. The problems of Traditional Knowledge include the absence of legal protection of Traditional Knowledge at the national and international levels and a large number of commercialization of Folklore and Traditional Knowledge, as well as the nature of Traditional Knowledge and Folklore whose use continues to develop discussion and is often hampered because there is no protection^[9].

The concept of Traditional Knowledge is an intellectual property that deserves legal protection because it is an important source of knowledge related to human life that can be commercialized. Traditional Knowledge owned by Indonesia has the potential to become an immaterial property when it has manifested in the form of products that have a distinctive design^[10]. The concept of traditional knowledge is closely related to the region as the owner of traditional knowledge, so it should be the local government as well as provincial and district/city hold important duties and functions in its protection. Intellectual Property Rights (hereinafter referred to as IPR) are not only about property but also recognition, respect for, and appreciation of contributions to human creators. Therefore, IPRs have an important role to play in protecting the dignity of traditional knowledge holders, i.e. when granting IPRs related to traditional knowledge, traditional knowledge holders are given a level of control over the use made by other parties for commercial purposes.

Traditional Knowledge Subjects are holders of Traditional Knowledge Rights, in this case, traditional communities that maintain and develop Traditional Knowledge and traditional cultural expressions traditionally and communally^[11]. Passing on the knowledge from generation to generation as the owner of the Traditional Knowledge right or the party who receives the right from the owner of the Traditional Knowledge right. The granting of protection for traditional knowledge becomes important when faced with its characteristics and uniqueness. There are several reasons for the need to develop protection for Traditional Knowledge, including considerations of justice, conservation, maintenance of culture and traditional practices, prevention of appropriation by unauthorized parties of traditional knowledge components, and development of the use of traditional knowledge interests^[12].

One of the weaknesses in developing a Traditional Knowledge protection system is the very limited data, documentation, and information on Traditional Knowledge that has existed for hundreds of years. The absence of written documents on Traditional Knowledge has been one of the reasons for granting patents by the patent office with the consideration of the absence of supporting documents (prior art) that can invalidate the invention concerned. This is very detrimental to the Indigenous people as the owners of the Traditional Knowledge. Traditional knowledge of local communities is not only important for the survival of the community itself, but also beneficial to the state and the international community for maintaining a sustainable environment, the development of science and technology, and acquisition of economic benefits^[13].

Referring to moral, legal, and expediency reasons, there are enough strong basic reasons for a country and the international community to regulate the legal protection of traditional knowledge. The IPR laws and regulations that explicitly regulate traditional knowledge are still insufficient to protect traditional knowledge. The number of cases of theft of some traditional knowledge of local communities illustrates that the weak protection provided by IPR laws such as the Copyright Law opens up opportunities for foreign parties/countries to hijack claims to traditional knowledge of Indonesian local communities^[14]. Such protection is needed to prevent products owned by Indonesian communities, especially those based on traditional knowledge so that their ownership is not recognized without permission by other countries. Therefore, these products need to obtain legal protection.

Regarding the protection of traditional knowledge in Indonesia, the government itself has tried to protect Indonesian traditional knowledge through the use of several IPR-related regulations, such as Copyright as stipulated in Law Number 28 of 2014 concerning Copyright. In addition to being regulated in the Copyright Law, Indonesian traditional knowledge is also regulated in Law Number 29 of 2000 concerning the Protection of Plant Varieties^[15]. In addition to utilizing regulations related to intellectual property rights to protect traditional knowledge in Indonesia, policies related to traditional knowledge can implicitly be found in provisions such as Law Number 32 of 2009 related to Environmental Protection and Management, specifically Article 63 (1) (t) which confirms that:

The protection of traditional knowledge discovered by the community needs to be considered because the discovery

is the property of an Indigenous community and cannot be taken by any party. Defensive protection can also be called non-legal protection, namely protection given to traditional knowledge and cultural expressions that are not binding. This form of protection is adopted through international, governmental, and non-governmental organizations, professional societies, and the private sector. This protection does not care which provisions (both national and international) regulate the protection of traditional knowledge, because the primacy of the right to culture and knowledge or traditional intellectual property existed before the IPR system existed, which then took over the role of IPR had the task of providing security and protection.

Some opinions say IPR law is not suitable for regulating traditional knowledge, because IPR is individual while traditional knowledge is communal. This is indeed important to understand considering that traditional knowledge is different from IPR, while IPR emphasizes a) the nature of individual creations; b) changes like traditional values; and c) competition in the free market. The doctrine of defensive protection will be a priori to the form of utilization of traditional knowledge and the use of traditional cultural expressions if the system of utilization (promote) used adopts the role mode of individualistic and commercial intellectual property rights protection. The second form of positive protection principle determines that the protection of traditional knowledge can be done by the creation of positive rights in traditional knowledge derived from the principles of collectivity, cultural protection, and the existing intellectual property rights system.

To analyze the system of protection of intellectual property rights that is harvested, it can be more in line with what is expected/needed by indigenous people and in line with the latest developments in the field of social culture, and economy. Two main points are deemed necessary to be carefully examined, namely, so that traditional knowledge can be considered as prior art, and so that the acquisition of intellectual property rights (e.g. patents) inappropriately can be prevented and can further accelerate the realization of the expectations of the wider community, namely so that the utilization of genetic resources, traditional knowledge and folklore expressions can be carried out optimally, and so that there is an adequate sui generis intellectual property system in these fields^[16].

The most important substance of such sui generis laws is the explicit recognition that local communities are the owners of the traditional knowledge in question. Customary law can be one alternative source or material for formulating the rights of local communities in the sui generis law. The sui generis law in question at least does not ignore elements based on religious norms following the nature of customary law which is religio-magical, simple in nature, and based on a social system that highly values togetherness.

The same legislation may also include arrangements for contractual practices and clauses related to the provision of access and benefit sharing. To protect knowledge, innovation, and traditional practices as well as ownership of resources by communities, tools are needed to regulate access so that there is fair and adequate benefit sharing for communities that have de facto practiced this. The current government has passed the Law on the Management of Genetic Resources with Law No. 4/2006 on Genetic

Resources for Food and Agriculture, as mandated in the Convention on Biological Diversity. With this law, it is hoped that our biological resources can be protected from theft of genetic material and local knowledge or biopiracy and prevent the development of Indonesian resources into industrial products abroad, without us benefiting from them. Recognizing and enhancing the values embodied in traditional medicinal knowledge will indirectly help strengthen its identity and increase its utilization to achieve social and developmental goals. In short, traditional medicinal knowledge has the potential to create sustainable economic development in many countries. Unfortunately, until now the legal protection of traditional knowledge, especially traditional medicines, is still unclear. The Patent legislation in Article 26 confirms that:

1. Article 26 If the Invention relates to and/or originates from genetic resources and/or traditional knowledge, the origin of such genetic resources and/or traditional knowledge must be clearly and correctly stated in the description.
2. The information on genetic resources and/or traditional knowledge as referred to in paragraph (1) shall be determined by an official institution recognized by the government.
3. The sharing of results and/or access to the utilization of genetic resources and/or traditional knowledge as referred to in paragraph (1) shall be implemented by laws and regulations and international agreements in the field of genetic resources and traditional knowledge.

Article 5 of Law No. 5/2017 on the Cultural Advancement and Regulation of the Minister of Law and Human Rights No. 13/2017 on Communal Intellectual Property Data provides communal intellectual property arrangements which include: Traditional Knowledge; Traditional Cultural Expressions; Genetic Resources; and Geographical Indication Potential.

Legal Protection of Traditional Knowledge of *Taxus sumatrana*

Traditional Knowledge is recognized as a means to facilitate the discovery and development of plant-derived medicines and can save enormous research costs and a very long time to find them. Traditional plants that contain medicinal properties and are used for generations by local communities are part of Traditional Knowledge. Traditional knowledge cannot be separated from local communities. In accordance with its development, the community has developed knowledge of medicine and treatment to meet their basic needs in the health sector. They also have rules regarding the ownership of such knowledge. Ownership of Traditional Knowledge in Indigenous Communities. To understand the ownership of traditional knowledge in indigenous communities, it is seen from the aspect of who produces it or the producer. Traditional Knowledge can be produced by an individual or a group of individuals the knowledge is maintained, safeguarded, and accessed^[17].

Taxus sumatrana is an evergreen shrub or tree that can reach > 14 m in height and up to 200 cm in diameter. So far, the most commercially valuable material produced from this species is taxol, which has anti-cancer activities. In addition to overexploitation, this species is threatened by naturally small populations and relatively limited natural

regeneration. The Sumatran taxus is listed in Appendix II of CITES ^[18].

The collection and trade of Appendix II species is based on quotas set by the Director General of Forest Protection and Nature Conservation (PHKA) (as the executing management authority), and the determination refers to the recommendation of the Head of the Biology Research Centre, LIPI (as the scientific manager). The collection of Appendix II species from nature is carried out with the principle of caution and does not damage the ecosystem (Non-Detriment Finding), especially the condition of its population. The implementation of trade (export and import) uses a special permit (CITES permit) ^[19]. Each permit shows the quota and the last accumulated number of species exported/imported, and the calculation is used by the CITES Secretariat for monitoring (who gets a copy of the permit (CITES permit) from the country sending the species. In principle, CITES imposes conditions on traded species to control and protect them the species ^[20].

Taxus sumatrana is one of the medicinal plants which is a plant that can be used as a medicine, ranging from those visible to those visible under a microscope ^[21]. According to Zuhud, herbal plants are all types of medicinal plants that are known or believed to have medicinal properties which are grouped into:

1. Traditional herbal plants, namely; types of medicinal plants that are known or believed by the community to have medicinal properties and have been used as raw materials for traditional medicine.
2. Modern herbal plants, namely; types of plants that have been scientifically proven to contain compounds or bioactive ingredients that have medicinal properties and their use can be medically justified.
3. Potential herbal plants, namely; types of medicinal plants that are thought to contain compounds or active ingredients that have medicinal properties, but have not been scientifically proven or their use as traditional medicine is difficult to trace.

The Indonesian Ministry of Health defines Indonesian medicinal plants as stated in the Minister of Health Decree No. 149/SK/Menkes/IV/1978, which is the part of the plant that is used as an ingredient of traditional medicine or herbal medicine. Plant parts that are used as starting materials for medicinal raw materials (precursors). The extracted plant parts are used as medicine. In line with the development of the herbal medicine industry, herbal medicines, phytopharmaceuticals, and traditional cosmetics, it also encourages the development of medicinal plant cultivation in Indonesia ^[22]. So far, efforts to provide raw materials for the traditional medicine industry have mostly come from plants that grow wild or are cultivated on a small scale in the neighborhood with inadequate quantity and quality. Thus, the cultivation aspect needs to be developed in accordance with traditional medicine raw material standards. Thus, legal protection of traditional medicine cannot only be based on policies from the Central Government. To optimize the potential in the field of traditional medicine owned by a region, the Regional Government must make efforts to be able to regulate and manage it through various policies that can guarantee legal protection of traditional medicine. The authority to manage its region is based on the regional autonomy system implemented by the Government of Indonesia.

Legal protection of *Taxus Sumatrana* in this study is still not specifically regulated, but the regional authority in protecting natural resource conservation has been issued in Lampung Province Regional Regulation Number 3 of 2006 concerning Management of Natural Resources and the Environment. The Regional Regulation on Natural Resources and Environmental Management will guarantee the integrated management of natural resources and the environment in Lampung Province. Through integrated arrangements, both planning policies, utilization, development, maintenance, recovery, supervision, and environmental control are expected to ensure sustainable regional development and the development process can improve the welfare and quality of life of the present generation without compromising the interests of future generations. The management of natural resources and the environment will be carried out based on carrying capacity and capacity and environmental quality analysis to maintain its sustainability. In addition, the Regional Regulation on Natural Resources and Environmental Management is an outline of government policy in the management of natural resources and the environment, both for provincial, district/city governments, business entities, and communities.

Conclusion

The legal protection of Traditional Knowledge is very important because Indonesia as a developing country has an abundant wealth of Traditional Knowledge. It is unfortunate that Indonesia has not been able to maximize the provision of legal protection against Traditional Knowledge and has not been maximized in concretizing its potential due to weak regulations, lack of knowledge, and the ability of the community to develop existing potential. Indonesia when compared to other developing countries is far behind in the recognition of the protection of Traditional Knowledge, especially against developed countries that have more qualified financial and manpower capabilities in addition to the technological sophistication they have. As a result, Indonesia can only be utilized by developed countries under the guise of conducting research, they can claim their discoveries against Indonesian traditional knowledge.

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