# Legal Aspect of Patents for Agricultural Biotechnology Products in Indonesia

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**ABSTRACT**: Biotechnology is derived from the words "bio" and "technology", which is defined as living organisms or systems to solve a problem or produce a valuable product for humans. Humans utilize products produced by biotechnology, especially agricultural biotechnology, to meet their daily needs and survival. The use of biotechnology inventions has been widespread due to some of the advantages obtained in this product. Undeniably, biotechnological products that are genetically modified have several advantages. Some agricultural products that are biotechnological products can be resistant to pests and various diseases, use fewer pesticides, have a delightful appearance, have more nutrients compared to the original product, and other benefits. This article discusses the biotechnology development in Indonesia and the legal aspects of a patent for an Agricultural Biotechnology Product in Indonesia. The advancements that have existed in physics, chemistry, mathematics and biology have stimulated the progress of biotechnology. In addition, there is a greater demand to achieve the targets with faster processes and innovative breakthroughs, which can be advantageous for people also stimulate the inception of the biotechnological invention. Legal aspects of agricultural biotechnology products get legal protection in intellectual property rights, especially patents. Legal protection of patents on biotechnological products in agriculture is granted to the process, in this case, the process of making agricultural biotechnology and agricultural biotechnology products, for example, drought-tolerant transgenic sugarcane and high yield. Health biotechnological inventions, in this case, the design is in the form of technological discoveries or medical tools or processes from the manufacture of health biotechnology.

**KEYWORDS**: Legal Aspects, Patents, Agricultural Biotechnology Products.

## I. INTRODUCTION

The main feature of the modern rule of law is the guarantee of human rights in its constitution. Following it, the founding fathers have built the Indonesian legal state by including the promise of human rights and the rights of citizens in the 1945 NRI Constitution. The provision of human rights and the rights of citizens then increased significantly in the 1945 NRI Constitution after the amendments. Included in this article, the 1945 NRI Constitution has regulated human rights and the rights of citizens in the form of guarantees of everyone to get an education and benefit from science and technology, cultural arts, to improve their quality of life and for the welfare of humankind as stipulated in Article 28C paragraph (1) of the 1945 NRI Constitution, which essentially gives everyone the right to develop themselves through the fulfilment of their basic needs, entitled to education and benefit from science and technology, cultural arts, to improve the welfare of humanity. Article 28C(1) of the 1945 Constitution is considered the primary constitutional basis for developing, implementing, and utilizing biotechnological products in Indonesia.

The provision can be used as a basis for protection and guarantees against the development, application, and utilization of biotechnological products in the form of goods and services for the benefit and welfare of the Indonesians. Biotechnology is not a new brand technology, but it is a series of technologies that have continued to develop and grow since thousand years ago, including various traditional processes such as the making of bread, wine, cheese, and the production of different oriental foods such as soy sauce and tempeh, also waste treatment that in the empirical process has developed the use of microorganisms since many years ago. Biotechnology is the implementation of technologies that use biological systems, living things or derivatives to create and modify products or processes for the particular use. Nowadays, in the 4.0 industrial revolution era, the advances of science and technology that have existed in physics, chemistry, mathematics and biology have stimulated the advancement of biotechnology. In addition, the greater the demand to achieve the targets with faster processes and innovative breakthroughs benefitting humankind also enable the inception of biotechnology inventions.

The use of biotechnology inventions has been widespread because of some of the advantages obtained in this product. Undeniably, biotechnological products that are genetically modified have some advantages. Some agricultural products that are biotechnological products can be resistant to pests and various diseases, use fewer pesticides, have a delightful appearance, and have more nutrients compared to the original product, etc. Some of the advantages of agricultural biotechnology products are claimed to overcome the problems of population and food faced by the world. In 25 years, the biotechnology plant journey has spent Rp. 1.9 trillion ($135 million) as the average cost of discoveries, development, and authorization of new biotechnological plant properties. Female farmers have realized an additional $96.2 Billion in income since the introduction of Genetically Modified Plants, which improve their quality of life and their families and the wider community. In 2018, farmers in developing countries received 4.42 Dollars (62,927Thousand Rupiah) every time they invested in biotechnology seeds. Growing genetically modified plants has helped 16.5 million farmers, their families and communities mostly living in developing countries over the past 20 years (Indonesia, 2019).

Based on the report of ISAAA.org 2020 (International Service for the Acquisition of Agri-biotech Applications), it is recorded a percentage of the adoption rate of major biotechnology plants globally in 2019. For cotton with an adoption rate of 79% (25.59 Million Hectares), soybeans with an adoption rate of 74% (91.76 Million Hectares), corn with an adoption rate of 31% (59.95 Million Hectares), and canola with an adoption rate of 27% (10.15 Million Hectares) (Indonesia, 2019). The increasing use and utilization of biotechnological plants in only 20 years make biotechnology a technological discovery in agriculture that is fast and beneficial in human life. This means reflecting the level of satisfaction of farmers towards the superiority of biotechnological plants that provide benefits and increase yields in agriculture. Biotechnology is a future industry that offers abundant blessings for the doer and the wider community but negatively impacts it if it's not limited by regulations as a form of legal protection. On the one hand, the development of this technology has been so rapid, while on the other hand, in general, our

society does not know about biotechnological products and their legal aspects. Biotechnology development is one of the essential parts of efforts in maintaining food security in Indonesia. The use of biotechnology in agriculture and farming can overcome the food crisis because with biotechnology, who can maximize the production of food products. With the growth that tends to be high, Indonesia requires energy in various fields, especially agriculture.

In reality, the government seems to have not been moved to issue biotechnology-based policies. Until now, there are no legal products that can stimulate the development of biotechnology in the agricultural field. The story of biotechnology seems to be running in place while food problems continue to change. Political dynamics in the maelstrom of power also seem to have not shown severe attention concerning biotechnology. Many countries have successfully developed biotechnology in various fields to help the needs of the country. In the end, the competitiveness of countries that have developed biotechnology becomes higher because they get the time and financial efficiency to issue a product. Legal Aspects of Patents for Agricultural Biotechnology Product in Indonesia are interesting to be studied further in this article. The study will be conducted by knowing the development of biotechnology in Indonesia and the legal aspects of patents for agricultural biotechnology products in Indonesia.

The type of research that's used in this paper is Normative Juridical, it means that the issues which is raised, discussed, and outlined in this study are focused on applying positive legal rules or norms (Marzuki, 2016). Normative juridical research is carried out by reviewing various kinds of legal rules that are formal such as law, theoretical literature that is connected with the main problems. As for this paper, the author uses 2 (two) types of approaches, namely statutory approach and conceptual approach (Marzuki, 2016). Based on the description that is explained by the author in the background of study before, the research questions in this article is as follows: (a) How is biotechnology development in Indonesia? (b) How is the legal aspect of patents for agricultural biotechnology products in Indonesia?

## II. BIOTECHNOLOGICAL DEVELOPMENT IN INDONESIA

According to researchers, biotechnology is application field of biosciences and technology that concerns about the practical application of living organisms or their subcellular components to the service and manufacturing industries also environmental management or can also be defined as technology that uses biological systems (biological processes) to obtain goods and services that are useful for human welfare. In general, who can say that biotechnology is an applied science of biological processes? Based on such limitations, biotechnology has become too broad. It needs to be defined by narrow boundaries. On the other hand, biotechnology applies technologies that use biological systems, living things or derivatives, to create, modify products or processes for a particular use. In line with this, biotechnology is the application field of biosciences and technology that concerns about the practical application of living organisms or their subcellular components to the service industry and manufacturing and environmental management, or it can also be defined as technology that uses biological systems (biological processes) to obtain goods and services that are useful for human welfare. Biotechnology utilizes bacteria, yeast, squash, algae, plant cells or animal cells that are bred as constituents of various industrial processes.

Biotechnology uses bacteria, yeast, squash, algae, plant cells or animal cells produced as constituents of different industrial processes. In its development, biotechnology was distinguished into traditional and modern biotechnology. Traditional biotechnology utilizes microbes (organisms) to modify materials and environments to obtain optimal products—for example, the manufacture of tempe, tape, bread, and composting garbage. Related to modern biotechnology, it is done through the utilization of human skills in manipulating living things so what can use them to produce products as humans wanted. For example, through genetic engineering techniques. Genetic engineering is a technique for producing DNA molecules that contain new expected genes or combinations of new genes or can be said as organism manipulation. In article 3 sub(i) of the *cartagena Protocol on Bio Safety to The Convention on Biological Diversity* explains:

*"Modern Biotechnology" means the application of in vitro nucleic acid techniques, including recombinant deoxyribonucleic acid (DNA) and direct injection of nucleic acid into cells or organelles, or fusion of cells beyond the taxonomix family.*

Modern biotechnology, as mentioned above produces Living Modified Organisms (LMO). LMO is contained in article 3 sub(g) *Cartagena Protocol on Biosafety to the Convension on Biological Diversity*, namely:

> *"... any living organism that possessor a novel combination of genetic material obtained through the use of modern biotechnology."*

Based on the explanation above, it can be known that LMO is a living organism that has a combination of new genetic material which is obtained through applications of modern biotechnology, or generally said to be organisms resulting from genetic engineering. In the next development, there are 4 (four) basic principles of biotechnology, namely: (i) Utilization of biological agents; (ii) Using certain methods; (iii) Manufacture of a derivative product; (iv) Involves many disciplines. Modern biotechnology is proliferating after molecular genetics is well developed. Starting with an understanding of the DNA structure in the 1960s until the development of various molecular techniques has made understanding genes even better.

The development of biotechnology developed rapidly until the 4.0 revolution era nowadays, including agricultural biotechnology and health biotechnology. Agricultural genetic resources are basic materials used by researchers in research institutions or farmers / local communities to improve the quality and production of food or agriculture. Agricultural biodiversity is also critical to get balanced nutrition to maintain the health and growth of the community. Population growth in the world is increasing, so there needs to be an increase in agricultural production to meet food needs and security what can achieve this through the use of genetic engineering or biotechnology (Lokollo, n.d.). Gnetic engineering technology through biotechnology provides opportunities to get maximum quality in the agricultural sector or other sectors. Genetic engineering technology has the potential to support improved food security, reduce

pressure on land use, increase land productivity, reduce the use of water and agricultural chemicals, and improve the quality of human life.

In technical order, agricultural genetic engineering products are divided into several categories, namely: (i) First generation: pest resistant and tolerant to herbicides; (ii) Second generation: nutritional Value, resistant to stranglehold; (iii) Drought-resistant; (iv) New Crops: development of varieties or types of crops for developing countries, such as superior rice, virus-resistant potatoes, superior yams, sugarcane, and horticultural varieties; (v) New traits: mitigation and adaptation to climate change; (vi) *New techniques*. The application of biotechnology in the field of health includes the detection of various diseases including hereditary diseases that are very difficult to overcome, human organ transplants, various prosthanities, and new drug discoveries. Biotechnology in the field of health is divided into 3 (three) parts including *Healthcare Biotechnology*, *Agri Biotechnology,* and *Industrial Biotechnology*.

## III. LEGAL ASPECTS OF PATENTS FOR AGRICULTURAL BIOTECHNOGY PRODUCT IN INDONESIA

Intellectual Property Rights Arrangement (from now on referred to as IPR) for inventors began with the inception of Law of the Republic of Indonesia Number 6 of 1989 concerning Patent L.N Year 1989 Number 39 (referred to as Law No. 6 of 1989). The law provides an opportunity for inventors to get protection in exclusive rights from the results of their inventions to encourage innovation. The critical thing stipulated in Law No. 6 of 1989 is the existence of the Appeals Commission. The Patent Appeals Commission is a fantastic body that is led permanently by a chairman. It is in a department headed by the Minister, who is tasked with examining appeals from applicants who are rejected based on reasons and grounds of substantive consideration (Purwaningsih, 2005).

In its development, Law No. 6 of 1989 changed to the law of the Republic of Indonesia Number 13 of 1997 concerning Amendments to Law No. 6 of 1989 on Patents (in the future abbreviated as Law No. 13 of 1997) Three crucial things contained in Law No. 13 of 1997 are the refinement,

addition, and elimination of some provisions in Law No. 6 of 1989 (Pakpahan, 1999). The presence of Law No. 13 of 1997 gives us a little touch of fresh air, where patents are not only available for technological inventions in the field of health, but any plant variety can also get patent protection. Related to this, the law still has a weakness, such as the invention of plants is not commanded thoroughly (Saidin, 2007). Law No. 13 of 1997 does not explain many terminologies related to the process of plant variety technology, making it challenging to implement it. This shows that Law No. 13 of 1997 has not accommodated legal protection related to patents in the field of technology.

Based on this, to create complete patent legal protection and can facilitate its use by the public, then law No. 14 of 2001 on Patents, which who later changed to Law No. 13 of 2016 on Patents (from now on referred to as the Patent Law), which is valid until now. The patent derives the patent word from the Latin "patens", meaning "to be open", and it is derived from a medieval practice created by the kingdom that who gave in the form of sealed letters or an open state that who could read without damaging the seal used for granting clemency, honorifics, office agreements and later giving, recognition of inventors (Mustafa, 2007). According to W.J.S. Poerwadarminta, the word Patent comes from a European language (patent/octroi) which means a business or permission from the government that states that a person or company can make its income goods (others should not make it) (Poerwadarminta, 1976). Other definitions of patents are also listed in the Patent Law article 1 which defines patents, namely:

> *"The exclusive rights granted by the State to the Inventor for the results of his invention in the field of technology for a period of time to exercise the invention themselves or give consent to the other party to carry it out."*

Based on the definition of Patent above, there are several vital elements that can be found and need to be understood (Riswandi & Syamsudin, 2004). *First,* the patent is an exclusive right; patents as material rights that are intangible (intangible assets) are monopolized / special requests. The specificity lies in the control of privileges that only exist in the hands of

patent holders, while monopoly means that not everyone can use or carry out the invention without the permission of the patent holder; The exclusive rights attached to the patent holder consist of two types, namely: first, a product patent, in which the patent holder has the sole right in implementing the patent in their property and to prohibit another party without their consent, making, using, selling, importing, renting, handing over, or providing for sale or rent or submission of the patented product; Second, Process Patent, i.e. Patent holders have the exclusive right to carry out the patents they own and to prohibit others from using the patented production process to make goods and other actions.

*Second*, patents are granted by the state to inventors, which means that the state is the only party entitled to patents to inventors. Usually, this task is delegated to a specific office that handles registration applications, announcements, examinations and granting patent certificates. In Indonesia, this task is driven by the Directorate General of Intellectual Property Rights under the Ministry of Law and Human Rights. To obtain a patent, an inventor is required to file a patent registration. If substantive and administrative requirements have been fulfilled, the inventor will be granted such exclusive rights by the state. Patents are granted for inventions in the field of technology, meaning that the giving of patents is only devoted to the area of technology; outside the field of technology, the patent can not be requested.

*Third*, the patent gives a certain period to carry out the invention or to give approval to other parties to carry out the design, and it means that inventors who get a patent should carry out their vision or can also give permission to other parties who want to carry out their invention. Others may implement patent-protected designs through a licensing agreement, unless otherwise promised, as long as the patent holder's license agreement can continue to carry out the patent (Riswandi & Syamsudin, 2004). Therefore, the exclusive rights granted to patent holders are limited in nature. After the patent expires, its status becomes a public domain or becomes public property. An expired patent is not an invention; it is only a discovery. The story is essentially an inventor's idea poured into a specific problem-solving activity in the field of technology in the form of products

or processes or refinement and development of products or development procedures.

The above explanation states that the patent is granted for inventions in the field of technology in the form of ideas that can apply in industrial processes, where this is the object of patent protection as an immaterial or intangible object as an industrial property right which is also part of IPR. In line with the statements above, inventions in biotechnology are also protected in patents. Biotechnology covers several fields; one of them is biotechnology in agriculture. Agricultural biotechnology inventions are intended in non-biological or microbiological processes for producing genetically modified crops, including chemical, physical, or other forms of genetic engineering. This suggests that patent protection towards genetic products in agricultural biotechnology is given to the process, in this case, the process of making farm biotechnology and agricultural biotechnology products, for example, drought-tolerant transgenic sugarcane and high yield. The invention in the field of health biotechnology, in this case, the story, is in the form of the discovery of technology or medical tools or processes from the manufacture of health biotechnology (e.g. medications) to treat a disease.

The legal protection of patents through the granting of patents by the state to inventors generally has two purposes.(Gumanti, 2015) *First*, to provide incentives for the inventor, with the aim that the provision of such stimulants can stimulate the making of other discoveries or the development of the previous findings by the same person or others. *Second*, it aims that every invention is opened to the public interest, for the benefit of society and technological developments. About the purpose of the patent, for the inventor, the patent provides advantages, such as: (i) The holder of a patent or inventor is authorized to take the benefits from the invention for his or her own benefit both material and immaterial, in ways which is justified by the law; (ii) Transferring its usefulness to others, in the form of allowing, renting, selling, granting, or bequeathing the contents of patents to others; (iii) Prohibit others to take advantage of the invention without the right of a valid patent holder; (iv) Prohibit the importation or exportation of inventions that are protected by patents, without the

approval of the legal patent holder; (v) The patent holder or the inventor may produce his invention abroad, due to financial reasons, and the processing technology cannot be produced in his own country.

## IV. CONCLUSION

The development of biotechnology inventions in Indonesia is growing rapidly until the current 4.0 revolution era. Ranging from traditional biotechnology to modern biotechnology, including the field of agricultural biotechnology whose invention provides benefits to human life. Regulation of Patents for Biotechnology Product including agricultural biotechnology in Indonesia is regulated in Law No. 13 of 2016 on Patents. Biotechnology covers several fields, one of it is biotechnology in agriculture. Agricultural biotechnology inventions are intended in nonbiological or microbiological processes to produce crops that are genetically engineered, which is done by including chemical, physical, or other forms of genetic engineering. This suggests that patent protection towards genetic products in agricultural biotechnology is given to the process, in this case the process of making agricultural biotechnology as well as agricultural biotechnology products, for example drought-tolerant transgenic sugarcane and high yield. Inventions in the field of health biotechnology, in this case, the invention is in the form of technological discoveries or medical tools or processes from the manufacture of health biotechnology (e.g. medications) to treat a disease.

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