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Patenting of Genetically Modified Plants and Seeds in Light of Monsanto Decision

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ABSTRACT

There seems to exist a lacuna in terms of patenting of genetically modified crops or plants. This came to light after the decision by the Indian Judiciary in the Monsanto Case. Hybridisation was the principal approach employed by farmers and cultivators, till a few decades ago, around the world to obtain desired output from plants with specified desirable characteristics. However, this approach can only be employed when the plants involved are of the same species or are quite closely related, not to mention the time it takes to complete the full process. To overcome this barrier, genetically engineered plants were created. Scientists have successfully transmitted desirable characteristics of one plant to another by manipulating plant DNA, despite the fact that the two plants may be of different species. This advancement can be used greatly to our advantage. Nevertheless, courts have historically been less than generous in terms of granting patents for hybridised organisms. This article aims to examine the lacuna so created in light of the past literature and judgements by different jurisdictions and enlist some recommendations that can be employed.

I. INTRODUCTION

Until several decades earlier, hybridisation was the primary strategy used by farmers and cultivators worldwide to obtain desired output from plants that have specific desirable features. However, this procedure can only be used when the plants involved are of the same species or are extremely strongly linked, not to forget the delay in completing the entire process. Genetically modified plants were developed to eliminate this impediment. Scientists have indeed transmitted certain desirable features of one plant to another

by engineering the DNA of plants, notwithstanding the fact that the two plants may be of two unique species. Fundamentally, the genetics in a genetically modified crop is artificially introduced, as compared to the plant acquiring said gene through pollination. Genetically modified plants are beneficial in various ways, including improved yield, cheaper farming costs compared to conventional crops, increased profit, stronger resilience to insects, greater resistance to herbicides, and higher nutritional value compared to traditional crops.

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The Patents Act of 1970 ("Act") limits patentable subject matter to inventions [2(m)], which are further limited by particular non-patentable inventions described in Section 3. Section 3(j) pertains to genetically modified organisms and reads as follows:

"Plants and animals in whole or any part thereof other than microorganisms but including seeds, varieties and species and essentially biological processes for production or propagation of plants and animals."

The provision makes no mention of the patentability of genetically modified organisms. Nevertheless, a broad reading may lead to the conclusion that they are non-patentable.

This is a subject on which Indian law has yet to elaborate. Due to this void, a review of the legal position in the United States can provide crucial guidance. The United States adheres to the "product of nature" theory, which states that patents might be denied due to a lack of innovation or because they are simply discoveries of naturally occurring compounds. While genetically engineered organisms are alive, they do not occur naturally. Recognising this, the United States Supreme Court ruled in *Diamond v. Chakrabarty*² that a genetically modified microbe capable of digesting several components of crude oil is patentable. The answer was simple: neither the purported bacterium nor its activity was detected in any naturally existing bacteria. The Court further

concluded that the claimed bacterium met the requirements for patentability since it was a product of human invention with a distinguishing name, character, and use.

II. LITERATURE REVIEW

Any innovation, new knowledge, product, method or technology developed regardless of its success or failure currently should be patented. Genes, DNA sequence, cDNA, expressed sequence tag, and single nucleotide polymorphism can be patented. In the landmark case of *Diamond v Chakrabarty*³, it was held that living matter could be patented provided that it was genuinely man-made. Traditionally, living organisms were not patentable. However, due to the onset of biotechnological research and development and innovation, protection had to be awarded to microorganisms post the landmark *Diamond v Chakrabarty*⁴ judgement.

In the *BRCA* case⁵, it was held that breast and ovarian cancer-causing genes exist naturally and are therefore unpatentable subject matter.

Patent can be obtained for:

1. isolated bacteria
2. cell lines
3. hybridomas related biological materials
4. genetically manipulated organisms.

In the case of *Dimminaco A.G. v. Controller of Patents and Designs*⁶, *Dimminaco AG* applied for a process patent for the preparation process of bursitis vaccine but was denied the patent since

² *Diamond v. Chakrabarty* 447 US 303 [1980]

³ *Ibid.*

⁴ *Ibid.*

⁵ *Association for Molecular Pathology v. Myriad*

Genetics, 569 U.S. 576

⁶ *Dimminaco A.G. v. Controller of Patents and Designs*, (2002) I.P.L.R. 255 (Cal)

the vaccine was a living organism. The Calcutta High court overruled the rejection and granted a patent for an invention involving a microorganism.⁷

The foundation of intellectual property laws is recognition and rewards for the innovator, which leads to industrial and technological developments. Development in the biotech sector put pressure on the legislature to grant patents for some primary life forms to assist in exploring uncharted commercial uses of these life forms.

Modern techniques have been adopted to create life forms with Novelty, such as genetically modified plants and animal species. However, the policies regarding the protection of such innovations still lay at the rudimentary stage. Multiple concerns about the patenting of microorganisms can be put to rest by precisely defining the word microorganisms and granting patents solely to those inventions that involve substantial human intervention, such as genetic engineering.⁸

The worldwide controversy in regard to genetically modified crops contributes to the fear in the context of gene patenting. It is primarily motivated by the fear of consuming crops that are genetically altered by modern techniques. It is also motivated by the commercial use of various genetically modified crops and the fact that it potentially could be owned and patented by a single company, Monsanto.⁹

If the insertion of nucleic acid in a plant or a seed becomes a part of that seed or plant, the invention is not patentable under Section 3(j) of the Indian Patents Act, 1970. On the other hand, if it does not become a part of that seed or plant, then it is patentable.

However, Indian courts have moved back and forth on this argument but without any fruit for a concrete conclusion. The TRIPS agreement allows for flexibility under Article 27.3 (b) and gives members the option to not include plants under patent but instead under an effective sui generis system.

This article made the argument that all novel technology, including seeds and plants, should be encouraged. The arguments that are made against the patenting of new plants and seeds hold no merit. Primarily, a patent does not grant a positive right to manufacture or sell the product in question. Moreover, the manufacturing and selling of any patented product are subject to approval from the competent authority.

Secondly, governments have massive powers to regulate the prices of patented products. At the same time, they also have the right to acquire a product that is patented for public purposes because the Patents Act, 1970, grants the right of compulsory licensing.

Furthermore, claims that farmers are committing suicide because of technological innovations such as the bt. Cotton crops are baseless. A more

⁷ Raman Singh and Kuldeep Singh, Biological patent and patentability, *Integr. J. Soc. Sci.*, 2018, 5 (1), 35-40

⁸ Ramkumar Balachandra Nair and Pratap Chandran Ramachandran, Patenting of microorganisms:

Systems and concerns, *Journal of Commercial Biotechnology* (2010) 16, 337 – 347

⁹ Jacob S. Sherkow and Henry T. Greely, The History of Patenting Genetic Material, *Annu. Rev. Genet.* 2015. 49:24.1–24.22

plausible and backed cause of farmer suicides is ineffective laws and policymaking, along with insufficient representation.¹⁰

Monsanto, a United States biotech company, developed a bollworm resistant bt. Cottonseed by introducing a nucleic acid sequence. The Indian Patent Office granted them a patent for the same. Monsanto filed a suit against Nuziveedu Seeds Ltd. for infringement of their patent. However, Nuziveedu filed a counterclaim challenging the patentability of the cotton seeds under Section 3(j) of the Patents Act, 1970. The Delhi High court ruled in Nuziveedu's favour, but that decision was overruled by the Supreme Court. It was not classified as propagation of production solely due to the fact that the genetic modification made by Monsanto included inserting nucleic acid into the plant, which cannot propagate on its own. This is evidently a glaringly obvious loophole in the system. On the other hand, Monsanto's modified cotton seeds elevated India to one of the top producers of cotton fibres. This only goes to further prove the point that novel and unique innovations should be encouraged and protected simply because they might potentially be the stepping stone for India's biotechnological and agro development.¹¹

III. CONCLUSION

In light of the above statements, the recommendation is made that Section 3(j) of the Patents Act, 1970 should be amended to include "plant, seed and any part thereof".

To conclude, taking into consideration the above-cited literature, it is recommended that genetically modified plants and seeds should be open to patenting if substantial human intervention is found so as to further scientific development. Patenting of life forms may open up several new avenues that are in relation to intellectual property rights. An essential setback in the area of patent protection of biological materials is the absence of definition to the concepts of both innovation and discovery. Without substantial and robust patent protection to biological materials, this colossal mass of information may stay a trade secret and not be brought outside into the public domain for commercial opportunities.

¹⁰ Ghayur Alam, *Monsanto's Bt. Cotton Patent, Indian Courts and Public Policy*, WIPO-WTO Colloquium Papers, 2019, 71-90

¹¹ Sonali Kokane, *What Cannot be Patented in the Jurisdiction of India?*, *Journal of Intellectual Property Rights* Vol 25, November 2020, pp 196-203