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Patenting of Life Forms and Human Rights: A Critical Study of Legal Limits, Public Interest, And Biotechnology

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ABSTRACT
There is an increasing apprehension with regard to the patenting of higher life forms and the biological materials of those life forms, especially in the context of biotechnology and patents. The discussion, initially centred around issues of law relating to innovation, has now become an issue pertaining to dignity, access to medicines, farmers' rights, and the right to life itself. In discussing the matter of patenting of human material, it is necessary to consider human rights as an essential part since human beings enjoy a special place in our laws. This paper examines legal and human rights problems associated with the patenting of microorganisms, plants, animals and human biological substances, particularly taking into account the laws in India and in comparison with them. This essay suggests that whereas the very prospect of getting a patent acts as motivation for the process of research and development and technological evolution, the patent system which grants unlimited patents demeans humanity and does not serve the best interests of the public. The findings from the research indicate that the efforts by the existing legal framework to place such limits are not stable and always under scrutiny in relation to genetic material, genetically modified organisms, and plant varieties. It is therefore recommended that the interpretation of patent law be done in a manner that encourages innovation while at the same time maintaining the dignity of humanity and basic necessities of life.

Keywords: Patenting of life forms, human rights, biotechnology, Indian patent law, public interest.

1. INTRODUCTION

The term" living organism" is a broad one and encompasses all life forms from the single cell amoeba through human being, including bacteria, plants and all forms of animals and birds' life. Thus, a life form could be a unite or a being that is alive in nature. As an example, it may be anything from plant or animal or a virus to a human being.

The issue as to whether these organisms could be patentable is at the nexus of science, laws, ethical and human rights concerns. Traditionally, the patent laws focused on objects of man-made origin but recent developments in the field of biotechnology have transformed this stance in a big way. Contemporary advancements in genetic engineering, cellular manipulations, transgenics research and agriculture have raised a number of legal controversies that could not have been foreseen at the time of formulating classical patent laws .

Patent means the exclusive right in the form of a monopoly that the government gives to the inventor or to the assignee in consideration of a full description of the invention. Thus, through a patent, the holder gains the exclusive right to prohibit other parties from making, using, selling, offering for sale or importing the invention during the patent period, which normally runs up to twenty years from the date of filing. Since a patent is a monopoly right, the issuance of such right should meet basic requirements. As Article 27 of the TRIPS Agreement provides, patents should be granted for any inventions, be it a product or a process in any field of technology, provided that it is novel, involves an inventive step, and is susceptible to industrial application."[1] Section 3(j) of the Indian Patents Act makes an exclusion from patentability of any plant and animal in its entirety or in part except micro-organisms. Such a provision implies that life forms are not treated as mere inventions.[2]

However, the problem cannot be analyzed on the basis of patent law alone. The patenting of living beings creates problems related to the dignity of humans, health care, rights of farmers, food security, environmental protection, and commoditization of life. The problem, thus, is not about how much biotechnology can be encouraged but about how much legal protection can be provided to avoid the privatization of life. In this context, the study tries to explore the problem on the basis of the regulation of living beings through Indian and international patent systems from the perspective of human rights.

2. MEANING OF PATENTABILITY

Patentability means the ability of an invention to be granted patent protection under the law. In other words, it is the preliminary stage at which the patent law examines the potentiality for an invention to be granted exclusive rights by law. It is worth noting that although an invention can be scientifically interesting, economically useful or socially relevant, it does not become a patent per se.[3] This is due to the fact that the law only protects inventions that meet the legal criteria.[4]

The importance of patentability lies in the balance that it attempts to strike. First of all, it encourages innovation through rewarding creativity; at the same time, it attempts to ensure that nothing which is already in the public domain or occurs naturally can be monopolized. The issue of patentability is especially important in the area of biotechnology due to the ambiguity around whether inventions or discoveries have been made. It should be noted that a patent does not attempt to protect the natural phenomenon itself but only human interference resulting in something new from the phenomenon.

With respect to the laws of patent, there must be novelty wherein there should be no disclosure to the public before the filing of the patent application. There must also be an inventive step, which means the idea is not obvious to a person skilled in the particular art. There must be industrial applicability which means the idea should have a practical application in the industry or in technology. These three elements serve as the basis for patentability since the patents should be given to true advances, not merely changes or phenomena presented as inventions.

[1] TRIPS Agreement, art 27
[2] Patents Act 1970, s 3(j).
[3] India Law Offices, 'Can Idea or Invention be Patented?' (India Law Offices) <https://www.indialawoffices.com/legal-articles/the-patentability-of-an-idea-whether-an-idea-is-an-invention> accessed 27 June 2026.
[4] Patents Act 1970, s 2(1)(j)

However, when looked at in light of biological organisms, the whole idea turns out to be much more complicated. By nature, the living organism usually is seen as something which is made through the natural course of events and therefore cannot be protected by any patent laws. Simply put, nobody can claim the right to take possession of something which was not created by him or her. On the contrary, if an organism or any other biological material has undergone some changes as a result of human efforts, then patent protection for it might become possible.

The difference between invention and discovery is one of the main factors that come into play during discussions about patenting living things. By definition, discovery means revealing something that existed in nature without any human involvement, while invention means creating something new through human ingenuity and actions. Protection from patent law can be granted only for invention, but not for discovery. Thus, genes that exist in nature, raw seeds or living things as they exist in nature cannot be patented, while biotechnological creations may or may not be eligible for patenting depending on legislative requirements and interpretation. This was established by the US Supreme Court in the case Diamond v. Chakrabarty when it ruled that genetically modified bacteria could be patented as an invention and not as a discovery.[5] International patent law also shows this boundary. Article 27 of the TRIPS Agreement says patents must be available for inventions, in all areas of technology. Article 27.3(b) lets members exclude plants and animals except microorganisms and mostly biological processes for making them from being patented.[6] This shows that patentability is not a purely technical concept; it is also a policy tool through which states decide how far private rights should extend over life, agriculture, and biological resources.

In India, this idea is expressed under Section 2(1)(j) of the Patents Act, which defines invention, and Section 3(j), which excludes plants and animals in whole or in part other than microorganisms.[7] The Indian approach therefore makes patentability a carefully limited gateway rather than an open door. It allows protection for genuine technological contributions, but it refuses to convert all forms of life into private property.

Thus, patentability in the context of life forms is not merely a question of legal formality. It is a deeper inquiry into the relationship between innovation, nature, and ownership. The real issue is whether the subject matter represents a true human invention or only the discovery and rearrangement of what nature has already created. That distinction is essential to your paper because it leads directly into the human rights, ethical, and public interest concerns raised by the patenting of life forms.[8]

3. RELIGION, SOCIAL, ETHICAL ASPECTS OF PATENTING LIFE FORMS

The practice of patenting life forms has become controversial not only from a legal perspective but also owing to the fact that it cuts across many religious, ethical, and social justice dimensions. One worry is the possibility of biopiracy arising out of patents on biological material, where corporations take advantage

[5] Diamond v Chakrabarty 447 US 303 (1980)
[6] Agreement on Trade-Related Aspects of Intellectual Property Rights, art 27(3)(b)
[7] Patents Act 1970, ss 2(1)(j), 3(j)
[8] Global Patent Filing, 'Patenting of Life Forms? Comparative Study Between India and USA' (Global Patent Filing) <https://www.globalpatentfiling.com/blog/patenting-of-life-forms-comparative-study-between-india-and-usa> accessed 28 June 2026

of the rich genes and indigenous knowledge present in developing nations but do not get their due credit for the same.[9]

Most religious and ethical doctrines oppose the idea that life can be considered property. One dominant opinion is that all forms of plant and animal life, as well as human biological entities, are God's or nature's creation, and as such, should not be considered private property for commercial purposes. Specifically, there is an argument that human DNA has a spiritual significance that should not be commercialized. This is why patenting life forms is controversial since it makes something communal into a monopoly.[10]
There are simultaneous debates that assert that assigning patents would encourage research and provide means to deliver beneficial medicine and technology to people. However, the main point is that patents make medicine, food, and other inventions more expensive and less available to people who need them, especially in developing countries. Therefore, religious and social justice objections against biotechnology patents do not reject the need for innovations but raise doubts about the possibility of controlling life to such an extent while showing little consideration of human dignity.

4. INTERNATIONAL LEGAL FRAMEWORK

The TRIPS agreement provides the basic international standard with respect to patents, but it does not provide a totally uniform approach regarding life forms[11]. According to article 27, patents may be accorded to any invention in all fields of technology if such inventions are new, contain an inventive step, and are industrially applicable. However, article 27.3(b) permits the members to exclude plants and animals other than micro-organisms and essentially biological processes for their production from the scope of patentability[12]. It is clear that international patent law does not compel each country to approach life in the same way.

In spite of that, the Article 27.3(b) does not make the issue completely flexible. It mandates the protection of plant varieties using patents or an effective sui generis system or both, and it also protects the patentability of microorganisms as well as non-biological and microbiological processes[13]. Therefore, on one hand, the TRIPS Agreement seems to try to strike a balance between innovation and public interest, but on the other hand, it also leaves some discretion to governments regarding the extent of patentability over living things, particularly those related to agriculture and biodiversity.

5. INDIAN FRAMWORK

The Indian government has adopted a very conservative and limited stance on the patenting of life forms. As per Section 3(j) of the Patents Act 1970, the subject matter which is excluded from being patented includes, but is not limited to, plants and animals, both whole and partial, except microorganisms, seeds,

[9] 'Patents on life patently undermine food security' (Science in Society Archive, 14 July 2002) <https://www.i-sis.org.uk/trips3.php> accessed 28 June 2026.
[10] Ramesh Pattni, (Oxford) Hinduism, Plants and Environment Chair of Interfaith, Hindu Forum Britain Secretary General, Council of Dharmic Faiths
[11] Agreement on Trade-Related Aspects of Intellectual Property Rights, art 27(1), 27(3)(b)
[12] Agreement on Trade-Related Aspects of Intellectual Property Rights, art 27(3)(b)
[13] Agreement on Trade-Related Aspects of Intellectual Property Rights, art 27(3)(b)

varieties, species, and essentially biological processes of plants and animals[14]. The intention behind this constraint is neither to stifle innovation nor to impede the process of progress, but to see that the patent regime does not disrupt agriculture, biological diversity, and the interests of farmers by placing private rights over what should be a public resource.

Such a stance reflects the larger public policy choice that India has been trying to make when it comes to combining technological development with social considerations, especially within areas like food security, agriculture practices, and biological resources. It is by not granting patents for the vast majority of plants and animals that the law recognizes the special status of life over commercial products and that monopolies based on seeds, breeding stock, or biological processes could be detrimental to the public good. At the same time, by not excluding microorganisms, the Indian law clearly shows its willingness to grant patents to human-made inventions.

6. PATENTABILITY OF MICROORGANISMS

The existence of microorganisms is unique within the context of patent law because most microorganisms have been created through human invention, and not just discovered in nature. This was clearly established in the case of Diamond v. Chakrabarty where the Supreme Court of the United States determined that a bacterium which was genetically engineered to decompose crude oil was patentable because it was an invention[15]. The importance of this ruling comes down to changing the question being asked from whether something living is simply alive to whether it has been changed in its nature through human manipulation to make it something new and useful. This reasoning has had a major impact on biotech patent law around the world.

India's approach to the issue has been equally conservative. Although Section 3(j) of India's patent laws excludes all forms of plants and animals – not microorganisms – in their entirety or any part thereof, India has accepted the fact that microorganisms are patentable if produced by human intervention[16]. The limitations on acceptance can be clearly seen in Dimminaco AG v Controller of Patents and Designs, wherein the Calcutta High Court found that a method of preparing a live vaccine is not per se non-patentable merely because the end-product comprises living matter. This shows that the law in India does not automatically exclude all living things from being eligible for patent protection, but rather that it allows the same to be patented provided it is substantially modified.

7. PATENTABILITY OF TRANSGENIC ANIMALS AND HUMAN BIOLOGICAL MATERIAL

In the larger discussion of life forms, animals as well as human biological materials have posed the gravest problems in terms of morality because here law becomes involved in such issues as pain, consent, dignity and physical integrity. Transgenic animals have posed a problem because they are produced through genetic modification, usually for scientific research or commercial purposes, but they remain living creatures and can feel pain. This is why transgenic animals receive more careful consideration in the legal

[14] Patents Act 1970, s 3(j)
[15] Diamond v Chakrabarty 447 US 303 (1980)
[16] Patents Act 1970, s 3(j)

framework than microorganisms. In Europe, for instance, animal varieties and essentially biological processes have been excluded from patenting although occasionally the patent system has granted patents for genetically modified animals as long as they are not a particular variety. But India, which takes a cautious approach to the issue, continues to exclude animals, wholly or partially, from the main body of patentable inventions[17].

The problem only gets more complicated when the topic of conversation shifts to the matter of human biological materials. The cells, tissues, genes, DNA, and stem cells that make up the human organism are not merely scientific tools for research but parts of the human being himself. The problematic aspect of all this is that there may be a way to separate them from the human being, manipulate them, and turn them into private property, thus making the human body a commodity itself[18].

That is precisely why the question of human biological materials cannot be considered only in terms of novelty and usefulness. Rather, what needs to be questioned is whether the system of patents can ever be extended to ownership over the living tissue of a human body. There can be cases of scientific value but they still need to adhere to the principle of consent and also the very premise that human tissue is not just any common commodity. This is where the human rights perspective requires protection of scientific development without reducing the body or its tissue into mere commodities[19].

8. HUMAN RIGHTS IMPLICATIONS OF PATENTING LIFE FORMS

The purpose of patents is frequently described in terms of the incentive of innovation, however, the impact of patents is particularly felt by the common man in case of essential medicines, seeds, or biological matter which is made too costly or inaccessible. From the point of view of human rights, the issue of importance becomes clear in this respect, since patents can not be evaluated solely on the basis of inventor protection[20].

The right to health is linked to patent law since a good patent increases the cost of medication and thus reduces access to it by those in desperate need of such drugs. In India, this issue is not merely theoretical but practical since the issue affects the poor and vulnerable members of society who cannot afford expensive medications. Indeed, at an international level, the TRIPS regime itself has been considered in light of public health concerns and the Doha Declaration clearly indicates that such laws must be interpreted in favour of public health[21].

Human rights issues arise in the field of agriculture. If patents and similar intellectual property claims are made about the seeds, plant varieties, or biological material, farmers may no longer be able to do what they have done in the past when it comes to saving and trading seeds. The implications of such a situation

[17] *ibid*
[18] Moore v Regents of the University of California 51 Cal 3d 120 (1990)
[19] Patents Act 1970, s 3(j)
[20] World Intellectual Property Organization and Office of the High Commissioner for Human Rights, A Human Rights Perspective on Intellectual Property (WIPO 1998) <https://www.wipo.int/edocs/mdocs/tk/en/wipo_unhchr_ip_pnl_98/wipo_unhchr_ip_pnl_98_5.pdf> accessed 24 July 2026.
[21] World Trade Organization, Declaration on the TRIPS Agreement and Public Health WT/MIN(01)/DEC/2 (14 November 2001); World Health Organization, TRIPS, Intellectual Property Rights and Access to Medicines <https://iris.who.int/bitstream/handle/10665/258915/TRIPS.pdf> accessed 24 July 2026.

go beyond the economic aspect, as food security, rural livelihoods, and biodiversity depend on the accessibility of biological material[22].

Dignity of man is the general concept behind the connection between all of these concerns. When patents encroach upon the physical body of a human being, genetic material, or tissue, there exists a very real threat that the individual has become objectified as a source of resources rather than being regarded as an individual with certain rights. The courts and legal processes have made it abundantly clear on many occasions that the human body does not fall under normal categories of property and that any patent laws must recognize this and the concepts of bodily integrity, autonomy, and informed consent[23].

9. CRITICAL ANALYSIS AND SUGGESTIONS

The current status of the law reflects an effort on the part of India to maintain a delicate balance, although the balance itself is not as clearly defined as it could have been. For instance, Section 3(j) of the Patents Act 1970 excludes from the scope of patentability all plants and animals, whether whole or partial, with the exception of microorganisms, which has helped keep room open for agriculture, biodiversity, and farming. Nonetheless, there are still issues that remain vague within the section because of the advances in biotechnology, where forms of life cannot be readily classified either naturally or artificially[24].

The reason why this uncertainty has significance lies in the fact that biotechnology evolves at a faster pace compared to legislation. Courts have been able to deal successfully with specific cases. However, the case-by-case method will not help us to solve the general policy dilemma. The lack of clarity in defining the limits of the law leads to inconsistencies when dealing with the same type of material since the definition of such material, the description of the invention and the interpretation of the statute by the patent office are all quite different from each other[25].

The better the legal system in place, the greater need for clarification of limitations and safeguards. The country should look at a more specific definition of the terms "microorganism" and "essentially biological process", along with a more precise articulation of which biotech inventions are not patentable since they continue to be very much natural. Safeguards for the public interest also should be improved so that patents do not pose an obstacle in getting access to medicines, seeds or basic biological materials. In biotechnology, laws should ensure recognition of human innovation, but should not make any provision for monopoly on nature or life itself[26].

[22] World Health Organization, TRIPS, Intellectual Property Rights and Access to Medicines <https://iris.who.int/bitstream/handle/10665/258915/TRIPS.pdf> accessed 24 July 2026.
[23] S van den Hoven, 'Living with Dignity II: Patents and Contracts' in E Buchanan (ed), Human Dignity and Bioethics (OUP 2001); Moore v Regents of the University of California 51 Cal 3d 120 (1990).
[24] Patents Act 1970, s 3(j).
[25] Dimminaco AG v Controller of Patents and Designs AIR 2002 Cal 161; Monsanto Technology LLC v Nuziveedu Seeds Ltd (2019) 3 SCC 381.
[26] World Trade Organization, Agreement on Trade-Related Aspects of Intellectual Property Rights, art 27(3)(b) <https://www.wto.org/english/docs_e/legal_e/27-trips_04c_e.htm> accessed 24 July 2026.

What the above example shows is that it is important for patent law to be in tune with the social reality. The law may protect innovation but disregard its effects on the farmers, patients, and the society and in doing so it will not be a just law for very long. The ideal law would be the one that retains the structure of incentives offered by patent laws but imposes a more stringent public interest test on them. This would mean that it would safeguard any advancement made in the field of biotechnology while defining the boundaries for nature and inventions that have too high of a social cost[27].

[27] World Intellectual Property Organization and Office of the High Commissioner for Human Rights, A Human Rights Perspective on Intellectual Property (WIPO 1998) <https://www.wipo.int/edocs/mdocs/tk/en/wipo_unhchr_ip_pnl_98/wipo_unhchr_ip_pnl_98_5.pdf> accessed 24 July 2026.