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IPR and plant protection in India: A theoretical study

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Abstract
India is a land of diversities and has the inheritance of the ancient forms of medicine namely Ayurveda, Unani and Siddha. The plant varieties that India is unique and IPRs in the plant varieties are definitely a way out to the breeders to mitigate the associated risk. The present paper is a theoretical study of the IPR and the plant variety protection in India.

Keywords: Plant variety, patents, law

Introduction
Until the arrival of the General Agreement on Tariffs and Trade (GATT) establishing the World Trade Organization (WTO) in 1995, the multilateral and plurilateral treaties administered by the World Intellectual Property Organization (WIPO) constituted the bulk of the international law on Intellectual Property. The relevant treaties for Intellectual Property Rights (lPRs) related to agriculture were the Paris Convention and related plurilateral treaties, which dealt with areas such as patents, trademarks, appellations of origin or unfair competition; and the UPOV (The International Union for Protection of New Varieties of Plants, with presently 52 member countries) for protection of new plant varieties.
Under the GATT Agreement establishing the WTO, now it is the Agreement on TRIPs (Trade related (aspects of) Intellectual Property Rights) which covers all issues of Intellectual Property. While TRIPs obliges the adherence to the substantive provisions of the Paris Convention, it goes further in limiting the freedom of countries on several aspects of their intellectual property laws. India is a member of the WTO and is, therefore, obliged to implement the Agreement on TRIPs. Forms of intellectual property described under TRIPs also cover plant materials.
The TRIPs Agreement obliges members to provide protection for plant varieties either through patents or through an effective sui generis law or through any combination of the two. While TRIPs calls for the institution of an effective sui generis system of plant variety protection, there is no reference to UPOV or a call to adhere to any version of it. TRIPs also oblige the patenting of microorganisms and microbiological and non-biological processes for the production of plants and animals. It, however, presently allows the exclusion from patents, of plants and animals and essentially biological processes for their production.

Objectives of IRPS and agriculture
The TRIPs Agreement also ensures a universal, minimum level of protection of commercial marks, such as trademarks and geographical indications. For the first time in international law, trade secrets have also been accorded the status of IPRs. Under the TRIPs Agreement, the protection granted for IPRs can be tempered by appropriate provisions in competition law, particularly relating to practices or conditions of licensing of IPRs, which have an adverse effect on trade or transfer and dissemination of technology. The Convention on Biological Diversity (CBD) is the other important international agreement relevant to a discussion on IPRs and agriculture. It allows sovereign rights on a nation's genetic resources, its stated objectives being: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising out of the utilization of genetic resources.

Medical and aromatic plants in India

Medicinal plants are those plants that provide medicines - to prevent disease, maintain health or cure sickness. In one or other form, these plants benefit virtually everyone on the Earth. These plants are also related to various other usages, such as for nutrition, toiletry, bodily care, incense and ritual healing.

Aromatic plants are used for their aroma and flavour and many times these two groups become inseparable in terms of usages. In recent years a great demand of aromatic plants has increased because of increasing interest in aromatherapy.

The use of plants for medicines is by far the biggest use of plants in term of the number of species specifically targeted. Plants provide the predominant ingredients of medicines in most traditional systems of healing and have been the source of inspiration for several new drug searches to major pharmaceutical companies. There are three kinds of herbal medicines available in the market: raw medicinal plants material, processed medicinal plants material and medicinal plants herbal products. India has a long history and tradition as well as rich heritage of using medicinal and aromatic plants (MAPs) for health care and beauty in improving the quality of life.

India is also fortunate, perhaps, to have the richest reservoir of traditional herbal medicinal plants and prescriptions. The Indian systems of medicines comprise of Ayurveda, Siddha and Unani are having their deep roots in our society. Ayurveda is about 5000 years old and predominantly use medicinal plants for their preparation and formulations. Modern pharmacopeia also enlisted about 25% of drugs derived from plants. A vast majority of modern drugs although synthetic analogues but built on prototype compounds isolated from plants. The present era is witnessing a fascinating rejuvenation in the traditional system of medicine (Task force report of Planning Commission, 2000)[1] (Satyabrata Maiti).

Scientific names of the plants

Table 1: Shows name of the plant and scientific name

Names of the plant	Scientific name
Lemon	Citrus Limonica
Neem	Azadirachta Indica
Turmeric	Curcuma Longa
Ginger	Zingiber officinale
Pepper	Piper nigrum
Grarlic	Allium sativum
Sandal	Santalum album
Arjuna	Terminalia arjuna
Amla	Emblica officinalis
Almond	*Terminalia catappa*
Poppy	Papaver somniferum
Camphor	Cinnamomum camphora
Senna	Cassia senna
Jasmine	Jasminum Cyminoides
Nutmeg	Myristica fragrans
Rose	Geranium Indiana
Basil	Ocimum basilicum
Mint	Mentha piperita
Mucuna	Mucuna pruriens
Celastrus	Celastrus paniculatus
Jamun	Syzygium cumini

[1] Planning Commission 2000. Report of the Task Force on Conservation and ustainable Use of Medicinal Plants. Government of India.

Trade-related aspects of IPRS (Trips)

The TRIPs agreement requires signature states, including some 70 developing countries, to provide for the following protection (MTN/FA II-A1C):

- Contracting parties shall provide for the protection of plant varieties by patents and/or by an effective sui generis system (Section 5, Article 27(3b).
- Patents may be prohibited to protect order public or morality, provided there is a justification exceeding the mere prohibition in domestic law (Section 5, Article 27(2)).
- Plants and animals other than micro-organisms and "essentially biological processes for the production of plants and animals" may be excluded from protection (Section 5, Article 27(3b)).
- Compulsory licenses may be issued in limited cases of due diligence to make a licensing agreement, adequate remuneration, and subject to judicial review (Section 5, Articles 30 and 31).
- For process patents, the burden of proof of infringement may in some specified circumstances be shifted to the defendant to prove that the patented process was not used (Section 5, Article 34).

Persons shall have the option of preventing others from using without permission information of commercial value so long as reasonable efforts have been made to keep it secret (Section 7, Article 39). (W. Lesser, 1971) [16].

Intellectual property rights

The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) formed Annex 1C of the Agreement establishing the WTO. It is one of the agreements that formed the set of treaties finalised at the end of Uruguay Round (1986-1994) of GATT (General Agreement on Tariffs and Trade) negotiations. This Agreement consolidated and reiterated the provisions of various existing treaties on intellectual property rights such as the Paris Convention for the Protection of Industrial Property (1883-1967), the Berne Convention for the Protection of Literary and Artistic Works (1886-1971), the Rome Convention (1961), etc.

It also added certain new commitments. The major features of the agreement are that it provides for minimum obligations but countries are free to extend more protection than what is obligatory. It also requires that non-residents are treated on par with residents in the matter of IPR protection and also that if a country extends any special favours to one country the same will have to be provided to other member states also. The most distinctive feature of the treaty is that it provides for a dispute settlement mechanism between countries in the matter of non-fulfilment of the obligations by any country. The TRIPS Agreement included the following intellectual property rights:

- Copyright and Related Rights
- Patents
- Trade Marks
- Industrial Designs
- Geographical Indications
- Layout-Designs (Topographies) of Integrated Circuits
- Protection of Undisclosed Information
- Control of Anti-competitive Practices in Contractual Licences

- Copyright and Related Rights are exclusive rights of reproduction and distribution including communication to the public extended to original literary, dramatic, musical and artistic works andalso performances and broadcasts. The rights are for the life time of the author plus usually 50-70 years depending on national legislations. These rights are available without any formality.
- Patents are rights over new inventions in all fields of technology, both product and process, which satisfy the criteria of novelty, inventiveness and industrial application. The rights are valid for 20 years and also in the country in which patent is granted. Trademarks give protection to distinctive marks on goods and services used in trade and commerce. Common trademark of a group is known as collective mark and that which certifies a given quality of the goods of service is known as certification mark.
- Trademark protection can be availed of without any time limit. New and original artistic designs used on industrial products are protected through design rights. The term of rights is ten years only but it can be extended once for another term of five years.
- Geographical indications (GIs) are for goods which have certain qualities or reputation which are owing to their place of origin such as Basmati Rice or Darjeeling Tea. The GI rights are also without any time limit. However, unless protection is granted in the country of origin, other countries are not required to extend the GI protection to a good.
- There are rights on new integrated circuits of layout designs, limited to a 10 year period. The TRIPS agreement also enjoins on member states to protect undisclosed information which are of value in trade and commerce. Infringement of rights entail civil remedies in all cases and in the case of copyrights, trademarks and geographical indications criminal remedies also (T.C.James, 2016) [14].

Economic definitions of a patent length, height and breadth

The length of patent protection is characterised by the duration of the monopoly power; the scope of a patent bears on the intensity of the monopoly induced. The breadth of a patent defines the range of products encompassed by the claims of the patent, and therefore protects the patent holder against potential imitators. In general, the less specific the claims of the patent, the broader the patent is. The height of a patent confers protection against improvements or applications that are easy or trivial. The value of a patent to a firm depends on how effective its protection is in the two dimensions of breadth and height, in addition to being related to the patent length. (Michel Trommetter, 2008) [8].

The influence of trips

Patents originated hundreds of years ago when most inventions were mechanical in nature. It was extended to the chemical industry as it developed over the last hundred years or so, but not without difficulty. Initially patents on certain chemicals were not authorised, or there were restrictions to the patent claim (e.g. processes only). Patent protection is now being extended to deal with biotechnology, again not without difficulty. Much progress has been made in recent years, both in extending the range of countries and regions with appropriate patent laws, and in reducing or abolishing the discrimination against patents for chemicals. Leverage to achieve such changes has received an enormous boost from TRIPS. Thus, the WTO Agreement has made many signatory countries improve patent laws, either to bring them into line with the minimum TRIPS standards or to eliminate discrimination against non-nationals. The development of biotechnology and of new biotechnology-derived products, such as genetically modified plants, highlights the need for harmonization in yet another area of patent protection.

TRIPs provides the possibility of excluding plants from patentability as long as an effective alternative system of protection is applied: this raises new questions, particularly when the UPOV Convention (developed to meet the needs of conventional breeders, not biotechnological inventions) is applied as the standard mechanism of protection for protection of plant varieties. Crop Protection Products and Products of Plant Biotechnology are subject to marketing and use approvals by government regulatory authorities. This approval is based upon the assessment of scientific studies on the products' efficacy and safety to humans, animals and the environment. Companies submit the corresponding health, safety and environmental data to national registration authorities, which, upon reviewing the data, make a decision on the suitability of the product for registration and sale.

Development of registration data involves an investment of many years and large sums of money by research based companies (in 2010, the average cost for a chemical introduction was $256 million3). A major part of the financial investment has to be made at comparatively early development stages. Moreover, the investment of time and money is of a high-risk nature since successful registration and sale of a novel product are not certainties. Therefore the data provided for regulatory purposes to government authorities are substantial assets which must be protected against unfair commercial use by competitors who wish to benefit without having incurred the expenses to generate such data.

Table 2: Patents on thirty medicinal plants in India

Plant/Herb	Number of patent applications published	Number of patents granted
Lemon	65	16
Neem	173	47
Aloe vera	185	43
Terminalia bellirica	123	25
Turmeric	103	16
Ginger	86	19
Pepper	80	17
Garlic	59	13
Sandal/Chandan	50	29

Arjuna	47	16
Amla	47	12
Almond	23	12
Poppy	18	05
Camphora	14	04
Senna	06	03
Jasmine/Jasminum	25	07
Nutmeg/Jati	26	03
Vetiver/Khus	09	04
Rose geranium	94	19
Patchouli	07	02
Chamomilla	06	02
Basil/Tulsi	60	09
Lavender	10	01
Rosemary	15	01
Mint	57	16
Mucuna/Kawanch	28	06
Jamun	10	01
Celastrus	11	02
Babchi/ psoralea	20	01
Musli	19	04

(Source: T.C. James. (2016) [14]. IPR issues related to medicinal and aromatic plants (Herbs & their allied products. Website: http://jamesthanickan.tripod.com.7–17).

The protection of plant varieties and farmers' rights (PPV & FR) act, 2001

Enacted by India in 2001 adopting sui generis system, It is in conformity with International Union for the Protection of New Varieties of Plants (UPOV), 1978.

The legislation recognizes the contributions of both commercial plant breeders and farmers in plant breeding activity and also provides to implement TRIPs in a way that supports the specific socio-economic interests of all the stakeholders including private, public sectors and research institutions, as well as resource-constrained farmers.

Objectives of the PPV & FR act, 2001

To establish an effective system for the protection of plant varieties, the rights of farmers and plant breeders and to encourage the development of new varieties of plants. To recognize and protect the rights of farmers in respect of their contributions made at any time in conserving, improving and making available plant genetic resources for the development of new plant varieties. To accelerate agricultural development in the country, protect plant breeders' rights; stimulate investment for research and development both in public & private sector for the development new of plant varieties. Facilitate the growth of seed industry in the country which will ensure the availability of high quality seeds and planting material to the farmers.

Rights under the act

Breeders' rights

Breeders will have exclusive rights to produce, sell, market, distribute, import or export the protected variety. Breeder can appoint agent/ licensee and may exercise for civil remedy in case of infringement of rights.

Researchers' rights

Researcher can use any of the registered variety under the Act for conducting experiment or research. This includes the use of a variety as an initial source of variety for the purpose of developing another variety but repeated use needs prior permission of the registered breeder.

Farmers' rights

- A farmer who has evolved or developed a new variety is entitled for registration and protection in like manner as a breeder of a variety
- Farmers variety can also be registered as an extant variety
- A farmer can save, use, sow, re-sow, exchange, share or sell his farm produce including seed of a variety protected under the PPV&FR Act, 2001 in the same manner as he was entitled before the coming into force of this Act provided farmer shall not be entitled to sell branded seed of a variety protected under the PPV&FR Act, 2001
- Farmers are eligible for recognition and rewards for the conservation of Plant Genetic Resources of land races and wild relatives of economic plants
- There is also a provision for compensation to the farmers for non-performance of variety under Section 39 (2) of the Act, 2001 and Farmer shall not be liable to pay any fee in any proceeding before the Authority or Registrar or the Tribunal or the High Court under the Act (InsightsIAS, 2019) [4].

Features of farmers' rights

The Act acknowledges the role of rural communities as contributors of landraces and farmer varieties in the breeding of new plant varieties. Breeders wanting to use farmers‟ varieties for creating Essentially Derived Varieties (EDVs) cannot do so without the express permission of the farmers. Anyone can register a community's claim and have it duly recorded at a notified center. If the claim is found to be genuine, a share of profits made from the new variety has to go into a National Gene Fund.

1. Exemption from fees: Further protecting farmers from the new set of provisions being put in place, the new Act stipulates that farmers wishing to examine documents and papers or receive copies of rules and decisions made by the various authorities will be exempt from paying any fees.

2. Disclosure: Explicit and detailed disclosure in the

passport data about the parentage of the new variety is required. If concealment is detected in the passport data, the Breeders certificate stands to be cancelled.

3. No terminator technology: Breeders must to submit an affidavit that their variety does not contain a Gene Use Restricting Technology (GURT) or terminator technology.
There are two main types of GURTs:
Variety-level GURT (v-GURT) and trait- level GURT (t-GURT).

- V-GURT causes the seeds of the affected plant variety to be sterile in contrast to t-GURT which results in the expression of a selected trait.
- T-GURT introduces a mechanism for trait expression into the variety which can only be turned on, or off, by treatment with specific chemical inducers. The gene of interest can thus be expressed at particular stages or generations of the crop.

4. Protection against innocent infringement: Rightly assuming that farmers may unknowingly infringe Breeders‟ Rights since they will not be used to the new situation, the law provides for protection from prosecution for innocent infringement.

5. Benefit-sharing: Benefit sharing‟ is a new concept not available in any other law, gives protection under the Act. This concept is introduced in the protection of rights given to the Breeder of new plant variety. It is an obligation cast on the registered Breeder to pay the conserver of plant variety, the genetic material of which is used by the breeder in evolving his new plant variety. Here the beneficiary is the person or persons who conserve the plant varieties. Benefit sharing means such proportion out of the benefit accruing to the breeder by virtue of monopoly granted to, as may be determined by the Authority in favor of and for payment to the beneficiary.

6. Protection against bad seed: The clause protecting the farmer from spurious seed leaves too much to the discretion of the Authority. There should be specific guidelines, such as that compensation should amount to at least twice the projected harvest value of the crop. In addition, a jail term should be provided for repeated offence. (R.M.Kamble, 2013) [10].

Law and policy rationale for plant variety protection

At the outset, it must be mentioned that plant variety protection can have a marrow and broad meaning. The narrow view only considers plant variety protection from the point of view of commercial breeders and the needs of the biotechnology industry. The broader view acknowledges that there are different actors in plant variety management who deserve protection and who perform different functions, ranging from innovation (new seeds) to agro-biodiversity management.

India has had a number of reasons for introducing a plant variety protection regime. The most immediate trigger for the Plant Varityy Act 2001 are the obligations undertaken in the WTO context, specifically under Article 27.3.b of the TRIPs Agreement. Article 27.3.B of TRIPs imposes on all countries the introduction of some form of intellectual property protection for plant varieties. However, it does not impose the introduction of patents and therefore leaves member states free to devise their own legal framework in this regard (Sui generis option). While ETO membership imposed a specific deadline on India for the introduction of plant variety protection. Other factors are also at play.

India has, for instance, been subjected several times to the appropriation of local knowledge of Intellectual Property Rights in the field of genetic engineering may not provide a direct counter to bio piracy, it raises the profile of traditional knowledge as an issue worthy of debate and protection. Beyond issues specifically linked to bio piracy, The Envelopment of an Intellectual Property Rights regime rights of resources and knowledge previously deemed to be freely available to all individuals and nations. The trend towards privatisation of resources, knowledge previously deemed to be freely available to all individuals and nations. The trend towards privatisation of resources, knowledge and means of production has been tremendous in the past couple of decades.[2]

Intellectual property rights (IPRS) and crop biosecurity[3]

IPRs can be defined as a set of laws devised for the purpose of protecting or rewarding inventors or creators of new knowledge. Precisely because knowledge, unlike consumable goods, can be shared by any number of persons without being diminished, creators are dependent on legal protection to prevent direct copying or the utilization of the product or process they have invented without the payment of compensation. IPRs are thus intended to confer exclusive rights for inventors or discoverers, for a fixed period of time.

Biological materials and data have long been preserved in and disseminated by repositories of microbial culture collections, seed banks and the like and were a source of crop biosecurity. These biological collections face great challenges but also great opportunities owing to the explosive increase in biological materials and data in the field of crop safety and biosecurity. The fact that the richest nations are home to the smallest pockets of biodiversity while the poor are stewards of the richest resources underlines the interdependency of all nations and the urgency of formulating common strategies for sustaining biodiversity, eliminating bio piracy and genetic drain and ultimately ensuring crop biosecurity. A biosecurity guarantee attempts to ensure that ecologies sustaining either people or animals are maintained. Crop biosecurity is the maintenance and conservation of crop biodiversity, checking the threat of bioterrorism, judicially and wisely using crop genetic diversity for crop improvement, reducing the risk of bio piracy and genetic erosion, and protecting the crops from other hazards such as insect pests and diseases for the welfare of humankind (YusufZafar, 2005) [18].

Table 3: Centre of origin of crops

Sl. No.	Center of origin	Crops
1	Southwest Asia (Fertile Crescent)	Cereals, legumes (peas, lentils, barley) and diploid cotton
2	Africa	Barley, emmer, flax, chickpea, pea, lentil, lettuce, onion, fig, grape, olive, millets, sorghum, African rice, yams,

[2] Dr.Philippe cullet. (2002). *plant variety protection and farmers' right.* delhi: International law Environmental law research centea

		Coffee
3	China and Southeast Asia	Millet, vegetables, soybeans, rice, citrus, tea, bananas, mangos, coconut, sugar cane
4	America (Mexico, South America)	Maize, potato, sweet potato, bean, tomato, chili pepper, peanut, bottle gourds, cucurbits, sunflower, cotton, sweet potato, pineapple, papaya, avocado, tobacco, cassava (manioc), cacao (source of chocolate), vanilla, cashew, pecan, Brazilnut, ornamental flowers (*Zinnia*, marigold, *Fuchsia*, *Canna*, *Nicotiana*, *Salvia*), coca

(Source: World Atlas of Biodiversity, UNEP World Conservation Monitoring Centre, USA, 2002).

Review of literature

Christoph Antons (2010) [2] contends that The so-called 'biotechnology clause' of Article 27.3(b) of the WTO-TRIPS Agreement requires from member states protection for plant varieties either via the patent system or via an 'effective sui generis system' or by a combination of the two. Many developing countries prefer forms of sui generis protection, which allow them to include exceptions and protection measures for traditional agricultural practices and the traditional knowledge of farmers and local communities. However, 'traditional knowledge' remains a vaguely defined term. Its extension to biodiversity has brought a diffusion of the previously clearer link between protected subject matter, intellectual property and potential beneficiaries (Christoph Antons, 2010) [2].

W.W.M.U.K. Wijesundara (2018) [17] opines that Plant patents (PPs) and Plant Breeders' Rights (PBR) are two forms of Intellectual Property Rights (IPRs) granted to improved novel crop varieties. The government of the state of authority issues PPs and PBR after confirming the uniqueness of varietal identity. The uniqueness relies on distinctiveness, uniformity, and stability of the new variety. Morphological, physiological and biochemical descriptors are less capable in varietal discrimination to obtain IPR in the presence of large number of closely related varieties as the reference collections, but advanced molecular tools such as DNA fingerprinting and sequencing have high potentials to detect the uniqueness. DNA fingerprinting and sequencing have identified varietal identities of many crops such as rice, apple, wheat, and soybean revealing the potential of the successful use of molecular descriptors in granting patents or PBR (W.W.M.U.K.Wijesundara, 2018) [17].

R.M. Kamble (2013) [10] deals with origin and development PBRS, the objectives of the act, its authorities and the farmer's rights and penalties relating to that. Human beings are the most intelligent among the creatures of the Earth. That is what they believe. However, they are only part of the system, and not the centre. Every creature has its own value and position in the system. Human activities often forget this fact. The Plant Patent was a tremendous step forward in the development of new cultivars for the benefit of the public. The "Peace" rose, was the single breakthrough that had maximum impact. Prom the Plant Patent Act, other forms of breeders‟ rights was spawned worldwide, including our own Plant Variety Protection Act (PVPA). Proof of the success has been the increasing use and acceptance of plant patents and the lack of challenges to the act and plant patent litigation (R.M.Kamble, 2013) [10].

P.A. Lakshmi Prasanna (2019) [9] propound that Under the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) of the World Trade Organization (WTO), India recently adopted the sui generis system of intellectual property rights (IPR) protection to plant varieties. The creation and provision of IPR for plant varieties in the seed sector at the global and national levels has led to several challenges: interplay of IPR and competition, overlapping IPRs, and interplay of IPR and other regulations. India can draw some insights from global initiatives in providing IPR protection to plant varieties (P.A.Lakshmi Prasanna, 2019) [9].

Carlos. M. correa (2015) [1] opines that Plant varieties were development over centuries through the exchange of deeds and the sharing of knowledge among farmers. Even today this is the model of innovation and diffusion in agriculture that prevails in most development countries. It is based on principles of common ownership, within a given community, and free access to materials and knowledge. However with the development of commercial plant varieties by seed companies, a new model of production and diffusion, based on intellectual property rights, has emerged. As a result of the obligations imposed by the agreement on trade-related aspects of intellectual property rights (TRIPS), world Trade Organization (WTO) member countries have now become bound to provide for some form of intellectual property protection on plant varieties. (Carlos.M.Correa, 2015) [1].

Vikas Pareek (2019) [15] contends that Intellectual Property Rights (IPR) is provided to an author by the government to protect his intellectual credits towards society. It grants the inventor an exclusive right for a certain period of time for proper use of his creation. Intellectual Property includes patents, trademarks and copyrights. Since last few years, many controversies have raised on biological patents. Patenting of extracts from indigenous plants, animals and organisms, already known to indigenous people, has been called Biopiracy. Still, people are not aware in terms of what invention or the technology can be protected/patented therefore present review deals with the knowledge that gives us the insight to handle with our intellectual property. (Vikas Pareek, 2019) [15].

Jayashree Watal (1998) [6] observes that Intellectual property rights (IPRs) can be broadly defined as legal rights established over creative or inventive ideas. Such legal rights generally allow right holders to exclude the unauthorized commercial use of their creations/inventions by third persons. The rationale for the establishment of a legal framework on IPRs is that it is a signal to society that creative and inventive ideas will be rewarded. This does not mean that there is no other way of rewarding such ideas or that this system is absolutely necessary, even less sufficient, to reward inventiveness or creativity. Nevertheless, it would be difficult to deny that IPRs do have a role to play in setting up of any such reward system. There are two broad categories of IPRs: one, industrial property covering IPRs such as patents, trademarks, geographical indications and industrial designs; two, copyright and related rights covering artistic and literary works, performances, broadcasts and the like. IPRs that do not fit into this classical division are termed sui generis, meaning one-of-its-kind. Such sui generis rights include those covering lay-out designs of semiconductor chips and plant breeders' rights. (Jayashree Watal, 1998) [6].

Sui generis act in India

The unique aspects of the Indian sui generis Act are:

1. Farmer is recognized as breeder, conserver and preserver of traditional varieties of crops and wild species in addition to cultivator, either directly or indirectly.
2. Protection is provided not only to new varieties10 but also to the extant varieties, including farmers' varieties. While the de minimus requirement for protection of new plant variety is novelty, distinctiveness, stability and uniformity (NDUS), novelty is not essential for extant and farmers' varieties.
3. Protection of varieties other than extant and farmers' varieties is limited to those genera or species notified by the Government of India in the Official Gazette from time to time.
4. A safeguard that a plant variety having genetic use restriction technology (GURT), like 'terminator gene', is disqualified from protection.
5. A different and possibly less rigorous procedure for the protection of farmers' varieties13.
6. Right for any person or group of persons who are citizens of India or governmental or non-governmental organizations or firms, if such firm or organization is formed or established in India, to claim for benefit sharing14 from a commercialized variety, which has been bred by using parental material belonging to such person or group of persons or firms or governmental or non-governmental organizations.
7. Creation of a National Gene Fund15 (NGF) wherein the benefit shared under the Act shall be credited to and to use this fund for supporting conservation at local community level including in situ and ex situ agro biodiversity collections and sustainable use of such genetic resources.
8. Provision for compulsory license16 for a period determined by the competent authority when a breeder or institution or their licensee fail to produce and supply enough planting material of the variety to farmers and causes its non-supply or short supply or charges prohibitively high prices for such planting material.
9. Establishing Plant Variety Tribunal17 for expedite disposal of legal disputes related to this Act.
10. An extensive farmers' right18 including the following main aspects:
    a) Right to register farmer's varieties.
    b) Entitlement for benefit sharing for the use of biodiversity conserved by the farming community.
    c) Right to save, use, sow, re-sow, exchange, share or sell farm produce including seed of registered variety but not the branded seed.
    d) Right to claim compensation for under performance of a right protected variety from its promised level under defined production conditions.
    e) Mandatory need to secure consent of farmer(s) when a farmer variety is used to develop an essentially derived variety (EDV).
    f) Protection from legal proceedings related to alleged infringement.
    g) Exclusion from paying fee in any legal proceedings in the Tribunal and Higher Courts.

Essentially derived variety

In respect of a variety (in this clause to be called "the initial variety"), an 'essentially derived variety' shall be said to be essentially derived from each initial variety when it:

1. Is predominantly derived from such initial variety, while retaining the expression of the essential characteristics that result from the genotype or combination of genotypes of such initial variety;
2. Is clearly distinguishable from such initial variety; and
3. Conforms to such initial variety in the expression of the essential characteristics that result from the genotype or combination of genotypes of such initial variety except variation in such characteristics which result in the process of derivation. (Malathi Lakshmikumaran) [7].

Conclusion

The protection right to the breeder is still not concrete and comprehensive in various countries, the Plant Variety Protection and the legislative cover under the sui-generis is still not conclusive.

The Intellectual Property Rights in the field of agriculture is still debated. The TRIPs and the WTO agreements have been adapted to the nativity of the respective country and local requirements. There has been a substantial leap in the field in the global and Indian context. There needs to be uniformity to be ensured across the countries.

References

1. Carlos Correa M. Plant variety protection in developing countries 2015.
2. Christoph Antons. Sui Generis Protection for Plant Varieties and Traditional Knowledge in Biodiversity and Agriculture: The International Framework and National Approaches in the Philippines and India. The Indian Journal of Law and Technology 2010, P89-139.
3. Crop Life International. Plant Science Industry Guide to Intellectual Property. Crop Life International aisbl 2011.
4. Insights IAS. Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act, 2001. The Hindu 2019, P1-3.
5. Jamie Mayer O' shields SR. Has India Addressed Its Farmers' Woes? A Story of Plant Protection Issues. Texas A & M University School of Law, ragavan.sri@law.tamu.edu 2007, P1-127.
6. Jayashree Watal. Intellectual Property Rights In Indian Agriculture 1998, P1-32.
7. Malathi Lakshmikumaran. (N.D.). Plant Variety Protection: Salient Features. Intellectual Property Rights P71-78.
8. Michel Trommetter. Intellectual Property Rights in Agricultural and Agro-food Biotechnologies to 2030. OECD International Futures Programme 2008, P1-43.
9. Lakshmi Prasanna PA, LV. Intellectual property rights protection for plant varieties in India: status, emerging issues, and challenges. Agricultural Economics Research Review 2019, P259-270.
10. Kamble RM. Sui Generis Plant Variety Protection: Indian Perspective. IOSR Journal of Engineering (IOSRJEN) 2013, P1-04.
11. Mauria S, MR. Intellectual Property Rights Related Issues in Plant Breeding. Plant Breeding - Mendelian to Molecular Approaches 2004, P691-692.

12. Satyabrata Maiti GS. (N.D.). Intellectual Property Rights for Medicinal and Aromatic Plants in India.
13. Sudhir Kochhar. System perspective for IPR Protection in the plant kingdom. Journal of intellectual property rights 2004, P345-355.
14. James TC. IPR issues related to medicinal and aromatic plants (Herbs & their allied products) 2016, P7-17. Website: http://jamesthanickan.tripod.com
15. Vikas Pareek RB. Intellectual property rights of inventions in biological science. Hospice & Palliative Medicine International Journal 2019, P178-190.
16. Lesser W. The Role of Intellectual Property Rights in Biotechnology Transfer under the Convent ion on Biological Diversity. Journal of Bacteriology 1971;106: 468-478.
17. Wijesundara WWMUK, GA. Intellectual Property Rights (IPRs) for Plant Breeders: A Review on Theoretical Framework and Employment of DNA-based Varietal Authentication for Claiming IPR. Sri Lanka Journal of Food and Agriculture 2018, P53-70.
18. Yusuf Zafar KA. Intellectual Property Rights in Plant Biotechnology: A Contribution to Crop Biosecurity. Asian Biotechnology and Development Review 2005, P7-43.