

# Patenting of Non Timber Forest Products

## H.S. Chawla

*Department of Genetics & Plant Breeding*

Nodal Officer, Intellectual Property Management Centre

*G.B. Pant University of Agric. & Tech., Pantnagar, Uttarakhand-263145*

Email: [chawlahs15@gmail.com](mailto:chawlahs15@gmail.com); [chawlahs\\_pantnagar@rediffmail.com](mailto:chawlahs_pantnagar@rediffmail.com)

The WTO was established on 1<sup>st</sup> January 2005 and is responsible for making and enforcing rules for trade between nations. WTO marks a major change in global trade rules. As an organization, it replaces the General Agreement on Tariffs and Trade (GATT), which had been in existence since 1947. The Eighth Round of Multilateral Trade Negotiations under GATT, which started in Uruguay in 1986, was concluded in 1994, leading to the creation of WTO as the new permanent international trade organization. The role of WTO is much more extensive than that of GATT, which dealt with trade in goods. Apart from goods, the two other broad areas that WTO covers are services and intellectual property, which previously belonged to the domestic domain. Accordingly, WTO administers not only the Multilateral Trade Agreements (MTAs) in goods but also the General Agreement on Trade in Services (GATS) and the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), which came into existence with WTO. All the agreements annexed to the Agreement establishing the WTO were signed as part of a package deal. Member countries did not have the option of choosing some and rejecting others. Another important difference with the erstwhile GATT is that WTO has a stronger compliance mechanism than the GATT. A member's failure to meet the obligations can invoke retaliation across agreements and sectors.

As one of the WTO agreements, TRIPS is binding on all member countries of WTO. TRIPS aims at establishing strong minimum standards for intellectual property rights (IPRs). IPRs can be defined as the rights given to people over the creation of their minds. They usually give the creator an exclusive right over the use of his/her creation for a certain period of time. Intellectual property includes patents, copyrights, trademarks, geographical indications, industrial designs, integrated circuits and trade secrets. The protection of IPRs is binding and legally enforceable.

IPRs have been created to ensure protection against unfair trade practice. Owners of IP are granted protection by a state and/or country under varying conditions and periods of time. This protection includes the right to: (i) defend their rights to the property they have created; (ii) prevent others from taking advantage of their

ingenuity; (iii) encourage their continuing innovativeness and creativity; and (iv) assure the world a flow of useful, informative and intellectual works.

### **Patent laws of different countries**

The first law providing these exclusive rights to an inventor dates back to 15th century in Italy. The first recorded patent was issued to Filippo Brunelleschi in Florence in 1421 for inventing a loading crane for ships. The first U.S. Patent law was enacted in 1790. Since then, the U.S. Congress has enacted a variety of laws relating to patents, such as the 1930 Plant Patent Act. US Patent law is grounded in Article I, Section 8, Clause 8 of the US constitution. Title 35 of the United States Code codified the Patent Act of 1952. Much of the biotechnology falls beneath the 'composition of matter' portion of §101. There are three milestones in European patent legislation history - The Paris Convention in 1883, The Strasbourg Convention in 1963 and The Rectification of European Patent Convention in Munich in 1973 as part of the effort towards the establishment of a common market in Europe. Supervised by the Administrative Council the European Patent Office (EPO) is the administrative body of the EPC responsible for granting European patents (Chawla, 2005). In India, The Patents Act, 1970 amendment 2005 is in operation, which allows both process and product patents. Major changes have been made by various amendments in the Patents Act 1970 and have become effective from 1.1.2005. The rationale for a patent system in the constitution is to promote the progress of science and technology by encouraging and rewarding the development of new inventions.

### **Patent**

A patent is a Government granted exclusive right to an inventor to prevent others from making/using, manufacture and market the invention, provided the invention satisfies certain conditions stipulated in the law. An invention means a new product or process involving an inventive step and capable of industrial application. It refers to a technical solution to a technical problem. While inventive step is a feature of an invention that involves technical advancement as compared to existing knowledge or having economic significance or both, making the invention non-obvious to a person skilled in art.

Exclusivity of right implies that no one can make, use, manufacture or market the invention without the consent of the patent holder. This right is available only for a limited period of time (twenty years). However, the use or exploitation of a patent may be affected by other laws of the country, which has awarded the patent. These laws may relate to health, safety, food, security, etc. Further, existing patent in similar area may also come in the way.

A patent in the law is a property right and hence, can be gifted, inherited, assigned, sold or licensed. As the right is conferred by the State, it can be revoked by the State under very special circumstances even if the patent has been sold or licensed or manufactured or marketed in the meantime. A Patent is territorial in nature i.e. within the boundaries of a particular country, which has given the patent. The word patent is derived from the Latin word 'Patere' which means 'to open'.

A patentee is an applicant for patent for the time being entered in the "Register of Patents" maintained in the patent office and is the proprietor of the invention disclosed in the said patent. If there are more than one patentee then the seniority of inventorship in a patent is immaterial, as all the inventors have the same rights contrary to what counts in a research publication.

The Patent Law recognizes the exclusive right of a patentee to gain commercial advantage out of his invention. There are three criteria to issue a patent for the innovation.

- i. *Novelty*: The inventor must establish that the invention is new or novel. The novelty requirement refers to the prior existence of an invention. If an invention is identical to an already patented invention, the novelty requirement is not met, so a patent cannot be issued.
- ii. *Inventiveness (Non-obviousness)*: It is an invention and not merely discovery. It is non obvious to one skilled in the field. The non-obvious requirement refers to the level of difficulty required to invent the technology. If an invention is so obvious that anyone having an ordinary skill would have thought of it, then it does not meet this requirement.
- iii. *Usefulness (Industrial application)*: It has a utility or is useful for the society. The useful requirement refers to the practical use of invention. If an invention provides a product that is required or needed in some manner, then it meets this requirement

In the patent adequate disclosure should be made so that others can also work on it. It should have the features: i) be a written description; ii) enables other persons to follow; iii) adequate and iv) deposit mechanism.

The present law, Patents Act 1970, amendment 2005 is effective from January 1, 2005. Product patents on all items including food, agro-chemical and pharmaceuticals have also been allowed making the Patents Act fully TRIPS compliant.

The purpose of a patent is to promote the progress of science and useful arts. The patent law promotes this progress by giving the inventor the right of exclusion. In exchange for this right to exclude others, the inventor must disclose all details describing the invention, so that when the patent period expires, the public may have the opportunity to develop and profit from the use of invention. A patent is enforced in the country which issues it, meaning thereby territorial in nature. For each country a separate application is to be filed in that country where protection is sought.

In order to ensure the interests of society, as per the Indian Patents Act, certain things have been excluded from the purview of patentability. Section 3 of the Patents Act, 1970 amendment 2005 relevant to plant material, non timber forest produce and agriculture which are excluded from patentability are given below:

3(d): the mere discovery of a new form of a known substance which does not result in the enhancement of the known efficacy of that substance or the mere discovery of any new property or new use for a known substance or of the mere use of a known process, machine or apparatus unless such known process results in a new product or employs at least one new reactant.

3(e): a substance obtained by a mere admixture resulting only in the aggregation of the properties of the components there of or a process for producing such substance.

3(h): a method of agriculture and horticulture.

3(i): any process for medicinal, surgical, curative, prophylactic (diagnostic therapeutic) or other treatment of human beings or any process for a similar treatment of animals to render them free of disease or to increase their economic value or that of their products.

3(j): 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.

3(p): an invention which in effect, is traditional knowledge or which is an aggregation or duplication of known properties of traditionally known component or components.

However, in India, method for rendering plants free of diseases or to increase their economic value or that of their products can be claimed for patent protection.

Microorganisms *per se* can be claimed for protection provided they are not mere discovery of organisms. It is mandatory to deposit the microorganisms in International Depository Authority (IDA). Budapest Treaty is related to microorganisms and microbiological patents. Budapest Treaty is an international convention governing the recognition of deposits in officially approved culture collections for the purpose of patent applications in any country that is a party to it. Because of the difficulties and on occasion of

virtual impossibility of reproducing a microorganism from a description of it in a patent specification, it is essential to deposit a strain in a culture collection centre for testing and examination by others. The Treaty was signed in Budapest in 1973 and later on amended in 1980. India has become a member of this Treaty with effect from December 17, 2001. In India, Microbial Type Culture Collection and Gene Bank, Institute of Microbial Technology (IMTECH), Chandigarh is a recognized international depository for some category of micro-organisms.

If an applicant mentions a biological material in the patent specification then disclosure requirements prescribed for biological materials have been notified in the list of the Central Government or for indicating its source and geographical origin [Section: 10,4(d)]. Permission from Biological Diversity Authority (BDA) of India is required for use of biological material. Applicant has to apply to BDA in a particular form alongwith a fee for use of biological resource. Number provided by BDA is to be mentioned in the patent application.

**Types of patents:** There are different types of patents: Ordinary application; Convention application; PCT international application; PCT national phase application; Application for patent of addition; and Divisional application.

If an application is made in the Patent Office without claiming any priority of application made in a convention country or without any reference to other application under process in the office is called an ordinary application. Normally this is the most common application. When an application comes to the patent office with an application claiming a priority date based on a similar application filed in one of the convention country, it is called a convention application. A convention country is a member of a group of countries or a union of countries or an Inter-governmental organization which are notified by the Ministry of Commerce and Industry, Government of India under sub-section(1) of Section 133. As per the notification published in the Official Gazette there are 180 members. To get a convention status, an applicant should file the application in Indian Patent Office within twelve months from the date of first filing of a similar application in the convention country. A convention application should be accompanied by a complete specification.

**Patent Cooperation Treaty (PCT):** PCT is a multilateral treaty entered into force in 1978. On 7<sup>th</sup> December 1998 India became a member of PCT, as the 98<sup>th</sup> Contracting State of PCT. In order to protect your invention in other countries, you are required to file an independent patent application in each country of interest; in some cases, within a stipulated time to obtain priority in these countries. This would involve a large investment, within a short time, to meet costs towards filing fees, attorney charges, translation, etc. Through PCT, an inventor of member country (contracting state) of

PCT can simultaneously seek patent protection for his/her invention in all/any of the member countries, without having to file a separate application in the countries of interest, by designating them in the international PCT application. The principal objective of the PCT is to simplify the patenting system and to render more effective and more economical services by the offices which have responsibility for administering it in the interests of the users. To achieve its objective, the PCT: i) establishes an international system which enables the filing of applications to a single Patent Office in one language having similar effect in each of the countries which are party to the PCT and which the applicant names in his application; ii) subjects each International Application to an international search which results in a report citing the relevant prior art which may have to be taken into account in deciding whether the invention is patentable; that report is made available first to the applicant and is later published; iii) provides for centralized international publication of International Applications with the related international search reports, as well as their communication to the designated Patent Offices; and iv) provides the option of an international preliminary examination of the international applications to decide whether the claimed invention meets certain international criteria for patentability.

The Head office of the Patents is at Kolkata. Patent offices (Kolkata, Mumbai, Delhi and Chennai) are designated offices for the purpose of receiving international applications filed under the Treaty.

**Types of patent documents:** Basically there are two types of patent documents with Provisional and Complete specifications.

***Provisional Specification:*** If the research is still in progress and results are expected in a year then an individual can file a patent application with provisional specification. It should contain the description of the invention with drawing(s) if required. However, it is not necessary to include claim(s). The complete specification including claims fairly based on the matter disclosed in the provisional specification should be filed within 12 months (extendable by 3 months) from the date of filing of provisional specification. The date of patent will be the date of filing (Priority date) of provisional specification.

***Complete Specification:*** Complete specification should fully describe the invention with drawing if required disclosing the best method known to the applicant and it ends with claim(s) defining the scope of protection sought. It is the claims that define the boundaries of the patent owner's rights. To determine if someone is infringing a patent, that is making, using, etc., without the patent owner's permission, the allegedly infringing product is compared only to the claims but never to what is mentioned in the title, abstract or in the general description.

**Procedure of patent application filing and examination:** Patent application is required to be filed according to the territorial limits where the applicant or the first mentioned applicant, in case of joint applicants for a patent, normally resides or has domicile or has a place of business or the place from where the invention actually originated. Immediately after receiving the application, the patent office gives an application number to it so as to identify the applications filed in the concerned year. After that, applications are screened for their respective field of technology and for defense purpose. After the expiry of 18 months period the application will be published in the Official Gazette having particulars such as date of application, number of application, name of applicant, address of applicant and abstract of invention. The application will be taken up for examination for its novelty, inventiveness, industrial applicability and validity of claims but only on request in Form 18 made after publication of application. Examination is automatic but a request has to be made by an applicant or even by third party (competitor). If no request is made, the application will be treated as withdrawn. Examination report is given to the applicant only. Examination fee is Rs 2500/- for individual while Rs 10,000/- for legal entity. Applicant can make a request for early publication in form 9 before the expiry of 18 months period of publication. Publication takes place within two months and then an applicant can make a request for examination. This procedure is adopted when an applicant thinks that his invention is commercially very important and viable and early patent grant will be helpful. Applicant can also withdraw application even without losing novelty, provided a request is filed for withdrawal at least 3 months prior to the expiry period of 18 months.

The Controller refers the application for examination whether the application, specification and other documents are in compliance to the Act and Rules. Examiner prepares a report and submits it to the Controller within one month. This report is referred as First Examination Report (FER). This FER along with objections is communicated to the applicant. Within six months from the issue of FER applicant is required to carry out necessary amendments [section 21 (1)]. As soon as the applicant has met with all the official requirements, the patent may be granted by the Controller. There is no need to make the request for grant separately. A patent is maintained by paying the maintenance fee every year. If the maintenance fee is not paid, the patent will cease to remain in force and the invention becomes open to public. Life of patent is 20 years, after which the patent is in public domain. Any one can then utilize the patent without the danger of infringing the patent. However, if a patent lapses on account of non payment of maintenance fee, it can be restored upon making an application in the prescribed manner to The Controller of Patents.

**Opposition of a patent:** Any person can apply in writing for opposition of a patent before and after the grant which are referred as pre and post grant opposition respectively. The

opposition may be filed on the grounds of patentability including novelty, inventive step and industrial applicability by non-disclosure or wrongful mentioning in complete specification, source and geographical origin of biological material used in the invention and anticipation of invention available within any local or indigenous community in India or elsewhere. Pre grant opposition can be made by any person to the Controller at an appropriate office for a patent application which has been published but not granted within three months from the date of such publication (section 25).

In case if a patent is a granted one but the period of one year from the date of publication of grant of a patent is not over then any person interested may give notice of opposition to the Controller [section 25(2)]. Opposition can be filed on any of the following grounds: Wrongfully obtained the invention; Prior publication of the claimed invention before the priority date of the claims; If the claimed invention in the complete specification is publicly known or used in India before priority date; If the claims does not involve any inventive step; If the invention is non patentable under the Act; If the complete specification does not describes the invention or the method by which it is to be performed; In case of convention application, the application for patent has not been made within twelve months from the date of first application used for protection; If the complete specification does not disclose or wrongfully mention the source and geographical origin of the biological material used for invention. In case of post grant opposition, Controller constitutes a Board called Opposition Board. Also patentee and the opponent are given an opportunity of being heard and on the basis of recommendations of Opposition Board, the Controller shall order either to maintain or to amend or to revoke the patent.

**Revocation of patent:** A patent granted does not mean that all the claims made in the specifications are valid. The validity of a patent can be challenged even after it is granted. Such kind of objections raised after the grant of patent is called revocation. A revocation can also be filed even after the term of 20 years of a patent has expired. Any patent granted can be revoked on a petition of interested person on the following grounds: if the invention claimed in any claim of the complete specification was already claimed in another patent already granted in India; if a patent is granted to a person not entitled to apply for a patent; If a patent is wrongfully obtained by contravening the rights of the petitioner or any other person; if any of the claim of complete specifications is not an invention under the Act; if the invention is not new, or if it is publicly known or used in India before the priority date of the claim or published in India before the claims was made; if the invention is not useful or sufficiently described; if the claims are not properly defined or claimed invention is not patentable; if patent obtained by false suggestion or representation; if claimed invention was secretly used before the priority date; if invention falls under non-compliance of secrecy discretion; if specification wrongly mentioned or not disclosing geographical origin; if invention is anticipated by traditional knowledge.

### **Plant patents**

Patents have been used to support innovations, but for various reasons plant varieties and methods of agriculture have been excluded from patentability until



recently, when a few countries namely USA, Japan and Australia began granting patents on plant varieties. The US Plant Patent Act (PPA), enacted in 1930 allowed granting of property rights for plant varieties of asexually propagated plants. The patent rights were extended to distinct and new asexually reproduced plants for a period of seventeen years. To boost private industry and advances in breeding technology led to the enactment of Plant Variety Protection Act (PVPA) in the 1970. The PVPA provided protection for sexual reproduction in plants including seed germination. In 1980 Diamond vs. Chakrabarty case set in motion the trend towards the legal acceptance of the commodification of germplasm. (Commodification is the process whereby an object, whether tangible, such as seed, or intangible, such as knowledge about the seed, is turned into a commodity, i.e. something that acquires an economic worth and can be bought and sold). US Supreme Court in Diamond vs. Chakrabarty case decided that microorganism should not be precluded from patentability for the objection raised by USPTO on the basis of “product of nature”. The court held that a live, man made bacterium was patentable under the PPA and the ‘product of nature’ objection therefore failed and the modified organisms were held patentable. The first utility patent on plant was given in 1985 to Tryptophan overproducer mutants of cereal crops (US Patent No. 4,642,411) referred as Hibberd case. Following the principle established in the Chakrabarty case, it was decided that normal US utility patents could be granted for other types of plants also e.g. genetically modified plants. It was affirmed by a ruling of US Supreme Court on December 10, 2001 that plant utility patents could be granted to sexually reproduced plants in an infringement lawsuit for sexually reproduced corn hybrids against J.E.M. AG Supply Inc. by Pioneer Hi-Bred International Inc. The court held that newly developed plant breeds fall within the subject matter of 35 USC §101 and neither the PPA nor the PVPA limits the scope of its coverage (Chawla, 2007a). Among transgenic plants herbicide resistant cotton, canola, soybean, etc; insect resistant potato, cotton, maize, etc. have been patented. In Japan also plant patents are allowed.

Patents have been given on different aspects of plant tissue culture and biotechnology. If one considers different approaches/processes of regeneration (organogenesis, embryogenesis) in a particular species then it is possible to obtain patent on these processes provided it fulfils the requirements. Patent (No. ZA9903893) on cloning of adult, selected plants of Eucalyptus through an *in vitro* regeneration process by somatic embryogenesis has been granted in Zimbabwe. Also, in Japan (Pat. No. JP2002191246) a method of producing clone seedlings of Eucalyptus plants is with Toyota Motor Corp., Japan. Besides, patents on procedures of *in vitro* cloning in millets (*Panicum miliaceum*, *Echinochloa frumentacea*) and rice with Patent Nos. RU 2226819, RU2218755, RU2203534 and

Patent Nos. US5350688, US6153813 respectively have been granted. These patents in general employ tissue culture procedures for multiplication and regeneration resulting in cloning of plants. Transformation approaches in a particular plant species have also been patented.

Life forms of plants and animals except microorganisms are not patentable in India. In pursuance to the TRIPs agreement article 27.3(b) plants and animals were left out of the compulsions of strict patent regime. However, members shall provide for the protection of plant varieties.

### **How to protect plant varieties?**

India and so many other countries do not protect plants by strict patenting system. But there is a mandate in the TRIPS agreement that plant varieties must be protected. In pursuance to the TRIPS agreement, India has enacted “Protection of Plant Varieties and Farmers’ Rights” (PPV&FR) Act, 2001, a *sui generis* system of plant variety protection. This law is unique which has brought forth the farmers rights under the gambit of law. The model for this was the UPOV Act. An International Convention [Convention of the Union for the Protection of New Varieties of Plants; original in French ‘Union International Pour la Protection des Obtentions Vegetales’ (UPOV)] was held *albeit* with few countries to negotiate and provide for the protection of new varieties of plants in Paris in 1961 and entered into force in 1968. It was revised in Geneva in 1972, 1978 and 1991. There are two main Acts of 1978 and 1991. The 1978 Act entered into force in 1981 and the 1991 Act entered into force in April 1998. Some sixty countries have subscribed to this UPOV Act many of which are developing countries. Under the UPOV a plant variety qualifies for protection when it meets three essential criteria, (i) distinctness, (ii) uniformity and (iii) stability, and the variety should be new in commercial sense. Application for its protection can be filed in the country where developed or in any other UPOV member country.

### **Plant Variety Protection in India**

As stated India is signatory to WTO agreements and it has to abide by the TRIPS regulations. As per article 27.3(b) of the TRIPS which demand that member countries should protect their plant varieties either by patent, or an effective system of *sui generis* protection, or a combination of these two. In this context India chose a *sui generis* system for protection of plant varieties. An Act named as Protection of Plant Varieties and Farmers’ Rights (PPV&FR) Act 2001 has been passed and Rules have been framed. PPV&FR Authority has been constituted with its Head Office located at Delhi. The PPV&FR Act is TRIPS compliant and compatible with UPOV system of plant variety protection.

The PPV&FR Act 2001 provides protection to following types of plant varieties:

- i. Newly bred varieties.
- ii. Extant varieties – The varieties which were released under Indian Seeds Act, 1966 and have not completed 15 years as on the date of application for their protection.
- iii. Farmer's varieties – The varieties which have been traditionally cultivated, including landraces and their wild relatives which are in common knowledge, as well as those evolved by farmers.
- iv. Essentially derived varieties.
- v. Transgenic varieties.

To qualify for registration under the act, a new variety has to conform to the criteria of novelty (N), distinctiveness (D), uniformity (U) and stability (S). Besides, a denomination has to be given for the registration of variety. Denomination refers to the label or title of the variety. It is the denomination that is registered. For extant and farmers' varieties which are in public domain the DUS features will be considered while the novelty feature will not be taken because these varieties are not new and are in public domain. In this act a special clause has been put which states that any variety with terminator gene sequences will not be registered. Thus any transgenic material with genetic use restriction technology (GURT) sequences will not be registered.

Once the variety has been tested for its features then the Registrar of the Authority will issue the certificate of registration. It shall have the validity of nine years initially in case of trees and vines with renewal up to a period of 18 years. For other crops certificate of registration will be issued for six years initially with renewal up to 15 years. In case of extant varieties the validity period is 15 years from the date of notification of that variety by the Central Government under section 5 of the Seeds Act 1966.

**Registration of varieties:** All the varieties will be registered with PPV&FR Authority. DUS guidelines for 57 different plant species which includes cereals, pulses, oilseeds, flowers, spices, vegetables, mango fruit tree and medicinal and aromatic plants have been notified by PPV&FR Authority in the Gazette. PPV&FR Authority has established testing centres for each and every crop species. In the first phase the registration of varieties for 12 crop species of cereals and legumes was started from May 2007. The registration of varieties is now open for 57 crop species and 20 more species are likely to be notified soon for registration. The Act has laid down the

norms for registration of plant varieties, fee structure, provisions of opposition, DUS testing of material, etc. If any farmer or association of farmers is applying for registration of a plant variety then this category is not required to pay any fee for either registration or DUS testing. Also an affidavit for Rs 100/- on non judicial stamp paper has to be submitted with the application form indicating that the variety does not contain any GURT or terminator gene technology.

**Breeders rights:** The certificate of registration for a variety issued under this Act shall confer an exclusive right on the breeder or his successor or his agent or licensee, to produce, sell, market, distribute, import or export of the variety [Section 28 (1)].

**Researchers' rights:** The researchers have been provided access to protected varieties for conducting experiments or research and use of a variety as an initial source of a variety for the purpose of creating other varieties. In case a registered variety is required as a parental line for commercial production of newly developed variety then authorization from the breeder of the registered variety is required [Section 30].

**Farmers' rights:** Indian law follows a holistic approach. The *sui-generis* system adopted by India is unique in the world in the sense that it has taken farmers' rights concept a step forward and genuinely addresses the concerns of farmers as breeders, innovators, conservers, etc. It has tried to incorporate the features of UPOV and ITPGRFA along with certain distinctive features of its own as per requirement of farmers. PPV&FR Act of India recognizes various rights of farmers as per Section 39. Indian PPV&FR Act allows farmers to save, use, sow, resow, exchange, share or sell his farm produce including seed of a variety protected under this Act, but it prohibits that the farmer shall not be entitled to sell branded seed of a variety protected under the Act [Sec. 39, 1(iv)]. The farmers have been given the right to register farmers varieties themselves [Sec. 39,1(i)], right to claim compensation for under performance of a protected variety from the promised level [Sec. 39(2)], benefit sharing for use of biodiversity conserved by farming community [Sec. 41]. According to the concept of benefit sharing, whenever a variety submitted for protection is bred with the possible use of a landrace, extant variety or farmer's variety, a claim can be referred either on behalf of the local community or institution for a share of the royalty [Sec. 41(1)] (Anonymous, 2010). In the Act a provision of compulsory license has also been put. According to this, after the expiry of three years from the date of issue of certificate of registration of a variety, any person interested can claim in an application to the authority alleging that reasonable requirements of the public for seeds or other propagating material have not been satisfied or that the seed or other propagating material is not available to the public at a reasonable price and pray for the grant of a

compulsory license to undertake production, distribution and sale of the seed or other propagating material of that variety [Sec. 47(1)] (Anonymous, 2010).

**Community rights:** Any village or local community in India can claim the credit for the contribution to a particular plant variety registered as a new plant variety. Any person or group of persons or any governmental or non-governmental organization may on behalf of the people of the village or community can claim their contribution in the evolution of a variety [Section 41].

**Registration of farmers' varieties:** For the registration of farmers' varieties, farmers have to be motivated. In this direction SAU's / ICAR institutes have to take the lead by organizing farmers camps on PPV&FR Act and explaining the benefits of registration of varieties and farmers rights so that valuable germplasm can be properly protected. In this direction Intellectual Property Management Centre of G.B. Pant University of Agric. & Tech., Pantnagar has taken the lead by filing applications of farmers' varieties of rice namely Tilakchandani, Hansraj, Indrasan, Bindli and Dhania, Rampur local of sorghum, Mohini of maize and five varieties of French bean viz. Bhainsku Swant, Bhura Lal Swant, Chitkabra Lal Jhulu Swant, Safed Swant and Safed Jhulu Swant from Munshyari on behalf of the farmers and for the benefit of farmers. After following guidelines, the PPV&FR Authority has registered three farmers' varieties of rice namely Tilakchandani, Hansraj and Indrasan. These are the first three farmers' varieties which have been registered in India by PPVFRA. Different models of registration of farmers varieties have been implemented such as an individual farmer who developed a variety, for group of farmers category applications were filed on behalf of registered group societies and from elected panchayats which were notified by Government of India so as to give the benefits to whole society, and also on behalf of traditional tribal communities. Different models of registration have been proposed because of diversity of Indian population and different types of norms in various communities so that benefits of conservation of genetic resources are distributed to genuine persons/ community.