



Development and Restrictions of Plant Patents in Taiwan

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INTRODUCTION

Taiwanese agricultural technologies and their development are outstanding, as demonstrated by the novel products available in the market every year. However, the current Patent Act in Taiwan protects only non-biotechnology methods for crop production (Hsiao, 2007). New cultivars cannot be protected by patents. Whether plants are patentable is debatable in Taiwan and internationally; therefore, this report provides relevant discussion.

STATUS OF GLOBAL PLANT PATENT LAW

Internationally, global plant patent protection can be divided into approximately three categories: (1) Plant patent protection is provided (e.g., the United States, Japan, South Korea, and Singapore). (2) Plant patent protection is provided, except for specific varieties (e.g., the United Kingdom, Germany, the Netherlands, France, and other European Union countries). (3) Patent protection is provided only to nonbiotechnological methods (the Genetic engineering: genetic modification or genetic manipulation by direct manipulation of an organism's genes using biotechnology) used on plants, such as in Taiwan. Main trade partners of Taiwan, such as the United States, the European Union, Japan, South Korea, and Singapore, have already made plant patents available. Creating an environment with comprehensive protection of high-quality intellectual property rights is not only conducive to the introduction of advanced technology from other countries, but also essential for the research and development outcomes of Taiwanese industries to be protected, thereby enhancing the international competitiveness of Taiwanese industries (Campi and Nuvolari, 2015).

In addition, because the requirements and scope of patent rights protection and plant variety rights protection differ (Table 1), many plant inventions that satisfy patent protection requirements do not necessarily conform to the requirements for plant variety rights. Moreover, the Plant Variety and Plant Seed Act covers only plant varieties announced by the competent authority. Therefore, plant patent protection must be introduced in addition to plant variety rights. Such dual rights protection system is also adopted by most major countries worldwide (Plant Variety Protection, 2019).

Table 1. Differences between Plant Variety Rights and Plant Patent Rights.

	Plant variety rights	Plant patent rights
Subject matter of protection	Plant variety	Articles, methods, and applications
Scope of protection	A single specific plant variety and its breeding materials, harvesting materials, primary processing products, and dependent varieties (including essentially derived varieties)	Plants, primary processing products, genes, plasmid, plant cells, tissue culture, nonmainstream biotechnological methods for breeding, primary products obtained using the patented method, and applications
Requirements	Novelty, Distinctness, uniformity,	Novelty, progressiveness, industrial

Examination method	stability, and plant characteristic description (basic explanation) + variety name Characteristic testing (document examination or substantive examination)	applicability, and disclosure of instructions (sufficiently explicit for practical implementation) Document examination
Scope of rights	Fixed scope of rights endowed actively by law	Defined according to the patent claims
Validity	Production or propagation, conditioning for the purpose of propagation, offer for sales or other forms of marketing, export and import, and possession for the aforementioned purposes	Article patent: manufacturing, offer for sales, use, and import Method patent: rights to use the method; the article produced directly using the patented method is also protected in the same manner as that protected by the article patent.
Duration of protection period	Woody plant or trailing perennial plants: 25 years; other plants: 20 years. Counted from the date of grant announcement	The patent expires 20 years after the application date.
Limitations to the rights	Experimental use Research, farming use exception, and compulsory license	Research use exception, farming use exception, and compulsory license

DEVELOPMENT PROGRESS OF PLANT PATENT LAW IN TAIWAN

Since 2002, the “Genetically Modified Product Interdepartmental Task Force” and the “Intellectual Property Rights for Living Organisms Interdepartmental Task Force” affiliated to the Executive Yuan’s Biotechnology Industry Advisory Panel in Taiwan have conducted in-depth discussions regarding the international trends of patenting animals and plants as well as the advantages and disadvantages of such patenting in Taiwan. On June 30, 2005, the Executive Yuan’s Council of Agriculture convened a symposium on whether to implement patent protection for animals and plants in Taiwan. In this symposium, a resolution was made that animals and plants in Taiwan should be patented to protect research and development achievements and to promote industrial upgrading.

In a meeting on August 23, 2005, the Executive Yuan’s Biotechnology Industry Advisory Panel decided to expand patent protection for plants. Because Taiwan is a latecomer in plant patent protection, existing plant varieties that have been known cannot apply for patents in Taiwan because they have lost their novelty. To facilitate industrial development, establishing a plant patent system enhances bidirectional exchange and trade opportunities in industry and provides various opportunities to plant seed enterprises, farmers, and consumers abroad. Following amendments to the Patent Act, farmers can purchase seeds or seedlings of the varieties protected by plant patents through legal channels without fear of patent infringement.

Article 63 of the draft amendments to the Patent Act references The Plant Variety and Plant Seed Act and adds that the validity of plant reproduction material patent rights does not cover farmers’ preservation of seeds for self-use and seed reproduction. Therefore, farmers can retain a portion of their seed harvest obtained through legal channels in their field for cultivation in the following season; the farmers need not be relicensed for such usage. Rice is the only species available for plant patenting in the existing plant patent system. Corn, soy bean, peanuts, mung beans, red beans, and other grains or beans are expected to be included as patented species. However, asexually reproduced crops in principle will not be made available for saving.

PRINCIPLES AND RESTRICYIONS OF PLNAT PATENTS IN TAIWAN

The objective of establishing plant patents is to protect botanical research and development outcomes to encourage invention. If new varieties bred by plant seed enterprises conform to requirements of novelty, progressiveness, and industrial applicability, the enterprises can become patentees, who can recover research and development costs through patent licenses or can transfer and attract investments in research and development personnel and capital. Therefore, plant seed enterprises and patentees are not two opposing parties. In addition, the plant Patent Act has been amended to add disclaimer clauses

for research and development of new varieties. Such clauses support the objective of establishing plant patents: encouraging technical disclosures to stimulate research innovation. Most countries do not have disclaimer clauses for breeders' research or experiments in their respective patent acts; instead, they provide disclaimers through general research and experiment regulations (Luby *et al.*, 2015).

However, to ensure the rights of the breeders (the workers who creating or finding and develop varieties), the Taiwanese government references legislation examples from Germany and France and specifies in Subparagraph 3, Paragraph 1, Article 59 of draft amendments to the Patent Act that "necessary behaviors to implement biomaterial invention for the purpose of cultivating, discovering, and developing new plant varieties" are not covered in patent validity. Therefore, plant seed enterprises can freely use patented plants without being restricted by patent rights for breeding and hybridization in order to cultivate, discover, and develop new plant varieties. Plant seed enterprises must obtain licenses from an original plant patentee only when the new variety encompasses all technical features of the original plant. This principle is identical to that of The Plant Variety and Plant Seed Act; this specifies that when a breeder develops a dependent variety, the breeder must obtain a license from the original patentee of the variety in the commercial application stage.

Despite the advantages of plant patents, controversy has risen worldwide. For example, overly extended application of the Patent Act, particularly registering natural resources (germplasm) and naturally mutated plant characteristics as plant patents, has been the subject of controversy. Taking *Kalanchoe blossfeldiana* for instance, a plant seed enterprise registers the characteristics and relevant hybridization varieties of double blooming *K. blossfeldiana* as the enterprise's plant patent (Jepsen and Christensen. 2015). However, whether specific cross combinations for hybridization and the plant characteristics of a national germplasm or those derived from natural mutation should be patented continues to be intensely debated. The aforementioned modes of plant patents have rendered the restriction of specific hybridization combinations and plant characteristics infeasible because according to the patent claims, the plant seed enterprise owns exclusive rights for such combinations and characteristics. Nonetheless, research and development of new varieties require the use of existing biomaterials. To prevent plant patents from hindering research and development of new varieties, in 2019, Plantum NL asserted that even patented biomaterials should be open for use for the purpose of researching and developing new varieties.

CONCLUSION

In summary, overly extended subject matters and rights claims of plant patents ended up impeding breeders' setting of breeding targets, making breeders circumvent the scope of patent validity to avoid infringement. However, such a result deviates from the purpose of plant patents, which is to encourage research, development, and innovation. Therefore, competent authority in Taiwan must exercise extraordinary discretion in granting plant patents to prevent overprotection from inhibiting industrial development and scientific research as well as to avoid legal issues.

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