

STJ AND TRANSGENIC SEEDS: MONSANTO AND THE PRIVATIZATION OF LIFE¹

O STJ E AS SEMENTES TRANSGÊNICAS: MONSANTO E A PRIVATIZAÇÃO DA VIDA

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Abstract

In the second half of 2019, the Superior Court of Justice (STJ) made an important decision on the extension of proprietary rights over life: it established that transgenic seeds are patentable and, therefore, charging royalties on them is legal. The judgment was the result of a dispute between Monsanto and rural producers in Rio Grande do Sul. The aim of this article is to analyze this judgment, examining its legal foundations, contradictions and effects. The problem here is: Did the STJ's decision respect the 1988 Constitution and the legal system it underpins? The findings of Juliana Santilli, Jack Kloppenburg and Pat Mooney are the starting point of the discussion. Methodologically, a contextualization is made about what native seeds are, as well as the risks that the current national and international system of intellectual property imposes on the fundamental right to biodiversity. Finally, the main arguments of the STJ decision and the precedent established by it are analyzed. Finally, it is concluded

Resumo

No segundo semestre de 2019, o Superior Tribunal de Justiça (STJ) tomou uma importante decisão sobre a extensão dos direitos proprietários a respeito da vida: estabeleceu que as sementes transgênicas são patenteáveis, sendo legal a cobrança de royalties sobre elas. O julgamento foi resultado de uma disputa entre a Monsanto e produtores rurais do Rio Grande do Sul. O objetivo do artigo é analisar esse julgamento, examinando seus fundamentos jurídicos, suas contradições e seus efeitos. O problema é: a decisão do STJ respeitou a Constituição de 1988 e o sistema jurídico dela decorrente? Como referencial teórico, parte-se das constatações de Juliana Santilli, Jack Kloppenburg e Pat Mooney. Metodologicamente, é feita uma contextualização acerca do que são as sementes crioulas, bem como sobre os riscos que o atual sistema nacional e internacional de propriedade intelectual impõe ao direito fundamental à biodiversidade. Por último, analisam-se os principais argumentos da decisão do STJ e o precedente por ela firmado. Conclui-se, por fim, que a

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that the decision of the STJ went against the 1988 Constitution and the Brazilian infralegal system and took an important step towards the privatization of life.

Keywords: farmers' rights; patents; Judicial power; intellectual property; transgenic seeds.

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Palavras-chave: direito dos agricultores; patentes; Poder Judiciário; propriedade intelectual; sementes transgênicas.

Introduction

In the second half of 2019, the Superior Court of Justice (STJ), for the first and only time, ruled on a case involving the patenting of transgenic seeds. The case is the result of a legal dispute between Monsanto/Bayer and farmers (small and large) in Rio Grande do Sul. On the one hand, farmers were opposed to Monsanto charging royalties, claiming that the transgenic seed, which contains the Bt gene, cannot be patented because it is a living organism. Monsanto, on the other hand, defended the possibility of patenting the technology and framing the seed within the guarantees provided by Law no. 9,279/1996 (Industrial Property Law). The STJ decided in favor of the multinational company, opening a new frontier of the possibility of patenting living organisms.

Despite the enormous relevance, the judgment was concluded without much repercussion in the public sphere or in the legal environment, including among environmentalists. Its result generates significant economic, agrarian and socio-environmental consequences, aggravating the risks to national genetic diversity and agrobiodiversity. As a result of the judgment, the power of companies over seeds and, consequently, over farmers and agriculture advances.

The problem discussed here is: Did the STJ's decision respect the 1988 Constitution and its resulting legal system? Methodologically, this work took the following path: First, it explained the dispute. Second, it described the WTO intellectual property system and how it impacted national legislation. Third, it analyzed the way in which the Laws of Cultivars and Seeds created a formal system that compromises agrobiodiversity. Finally, it critically presented the main arguments used to support the STJ's decision.

It was concluded that the STJ's decision disregarded national rules and legal principles, setting a serious precedent for the advancement of property rights over living organisms, in addition to increasing the economic and social power of a few multinational companies over farmers and national agriculture.

1 Monsanto versus rural producers in Rio Grande do Sul

In 2009, small and large farmers in Rio Grande do Sul (represented by the rural unions of Sertão, Passo Fundo and Santiago, as well as the Federation of Agricultural Workers of Rio Grande do Sul) filed a class action lawsuit against Monsanto². They demanded recognition of the right to reserve the transgenic soy Roundup Ready for the next harvest without paying royalties, technology fees or compensation. They argued that they were not obliged to continue paying royalties to Monsanto, as the transgenic seed could not be patented, as it was not protected by Law 9279/96 (Industrial Property law). They argued that, as it was a plant, the law to be applied was Law 9,456/97 (Cultivar law).

If Monsanto were right, farmers would have to buy the seeds and pay the royalties due for each GM crop. The royalties charged by Monsanto/Bayer, and unsuccessfully contested in the lawsuit, are 2% of the value of the commercialized transgenic soy, which represents almost all of the soy grown in Brazil (BRASIL, 2019). To get an idea of the decision's financial impact, according to the Ministry of Agriculture, the 2019/2020 soybean crop reached a production of 124 million tons (BRASIL, 2020), surpassing the 140 billion *reais* sold in 2018/2019 (BRASIL FATURA..., 2019).

If the farmers were successful, they would continue to buy the transgenic seeds, but would not be required to pay royalties. At the same time, they would have the right to keep part of the harvested grains³ and replant them in the following years without any charge or payment to Monsanto, which is known as the Farmer's Privilege. That is, they would have greater autonomy over their own seeds and lower financial expenses.

At the heart of the issue is the Farmer's Privilege, an internationally recognized institute, ratified by Brazil and ensured by national legislation (BRASIL,

2 Process 0251316-44.2012.8.21.7000. The Special Appeal no. 1,610,728 – RS. It is important to clarify to the layperson that the STJ is a court dedicated, in particular, to the standardization of national jurisprudence. Its decisions may, as was the case here, serve as an imposing standard that must be followed in other similar cases by lower judicial bodies of the Judiciary branch (BRASIL, 2019). The farmers' lawyers appealed the decision handed down by the STJ to the Brazilian constitutional court, the Federal Supreme Court (STF). However, the STF did not change the STJ's position. On 08/25/2021, the case became final and unappealable (BRASIL, 2019b).

3 This text uses seeds and grains as synonyms. One of the strategies of the Green Revolution was to institute this differentiation. The seed would only be the improved one, with high productivity, which contributes to its commodification, since farmers, following this logic, would only produce grains. Seed would be a commodity produced by companies and breeders, who have specific technical knowledge, and made available to farmers, as a rule, through purchase and sale (KLOPPENBURG, 1988; SHIVA, 2015).

1997, art. 10, I, II and IV). This institute ensures the farmer the replanting, without additional burden, of the seed from their harvest, provided that it is on their own property. For example, the farmer pays for the initial grains, however, when replanting them, the developer of the certified cultivar cannot demand a new acquisition of seeds or that royalties be paid again⁴. The only condition is that the farmer uses the seeds saved for the next season on their own property⁵.

Monsanto, however, did not recognize the Farmer's Privilege on GM soybeans, forcing soybean farmers to buy new Roundup Ready seeds and paying royalties on all crops. He defended that it was not a matter of protecting a certified cultivar, but a technology protected by the Industrial Property law.

The first instance of the State Justice met almost all of the farmers' demands. The Court of Justice of Rio Grande do Sul, as well as the STJ, fully accepted Monsanto's demand (BRASIL, 2019). As a result of the judgment, the STJ stated the following thesis:

[...] the limitations to the right of intellectual property contained in art. 10 of Law 9.456/97 – applicable only to holders of Cultivar Protection Certificates – are not enforceable against holders of product and/or process patents related to transgenics whose technology is present in the reproductive material of plant varieties (BRASIL, 2019).

The thesis generated the need for compliance by judges and courts, making this a paradigmatic case that will guide the positioning of the Brazilian Justice until it is reviewed by the STJ itself or by the Federal Supreme Court (BRASIL, 2019⁶).

2 Patenting or certification?

When the WTO was created in 1995, regulation on intellectual property was considered one of its pillars, with adherence to the Agreement on Trade-Related

4 The legislation, however, establishes some restrictions for replanting free of charge, the most relevant being: the possibility of using the saved seed only in the plot of land that owns the property or in a third-party establishment that exercises the ownership; and the reserve of grains in an amount compatible with the next crop (BRASIL, 2003).

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6 For readers who are not jurists or versed in Brazilian law, it should be noted that the STJ is a superior court, whose purpose is the normalization of national jurisprudence. Its judgments establish guidelines, which must be followed, for all Brazilian courts.

Aspects of Intellectual Property Rights (TRIPs) being imposed on all countries as a condition for becoming a member. However, the standardization of plants and cultivars generated a lot of controversy, as there was no consensus on subjecting them to the common patent regime. The countries then negotiated alternative solutions so that the Agreement could be ratified (SANTILLI, 2009).

Due to the lack of consensus, art. 27 of the TRIPs explained that any product can be patented as long as it meets the requirements of novelty, involves an inventive activity and has an industrial application. However, it also presented some exceptions to the general rule, allowing members to consider plants and animals as non-patentable, except for microorganisms and essentially biological processes for the production of plants or animals (SANTILLI, 2009).

Despite offering the possibility for countries not to submit plants to the general regime, it imposed on them the obligation to grant some form of effective protection to plant varieties, either through patents or through an effective *sui generis* system – or a combination of both. Brazil chose not to adopt patenting, but rather a *sui generis* system, joining the Union for the Protection of New Varieties of Plants⁷ (UPOV) and enacting two distinct legislations, the Industrial Property law, of 1996, and the Cultivars law, of 1997. The former protects intellectual property on inventions in general through patents. The latter safeguards inventions involving plant varieties through certification (SANTILLI, 2009).

It is important to clarify that the debate on the patenting of plants predated the creation of the WTO itself, presenting two main aspects, the US and the European. The United States was the first country to recognize the patenting of living beings, back in 1930; however, only from asexually propagated beings, excluding tubers, e.g. potatoes, which are also asexually propagated. European countries had been building a *sui generis* system of intellectual property over plants, the UPOV, since 1961, which was distinguished from patenting due to two central criteria, the Plant Breeders' Rights and the Farmers' Privilege (KLOPPENBURG, 1988; SANTILLI, 2009).

As seen previously, the Farmers' Privilege is the possibility of reserving part of the harvest for replanting in the following harvests, as well as the use or sale of the yield as food or raw material. Small farmers are guaranteed the exchange and donation of reproductive material among themselves within the scope of

⁷ UPOV is an international public law entity that emerged in Europe in 1961 with the aim of establishing intellectual property standards on cultivars. Brazil adhered to it after joining the World Trade Organization (WTO), pledging to follow the guidelines of the 1978 minutes and not those of 1991. This choice is very important for understanding this discussion, as it was disregarded by the STJ's decision (BRASIL, 2019).

financing and support programs, which have public authorization. The Plant Breeders' Right, on the other hand, is free access by researchers to cultivars, with a view to creating new plant varieties. That is to say, a certified plant will be commercially exploited only by its developer; however, any other breeder will have free access to it and its genetic material for the development of new varieties. The certification holder cannot impose any limits. The justification used is that this prerogative contributes to the protection of new research, at the same time that it safeguards and rewards the intellectual property of the plant variety inventor (SANTILLI, 2009). In Brazilian legislation, these guarantees are provided for in art. 10, I and III, of the Law of Cultivars.

The patent system is more restrictive than UPOV's, as there is no Plant Breeders' Rights and Farmers' Privilege. Permission for a plant to be patented means that it will be the inventor's property for as long as the law determines (at least 20 years, according to the TRIPs), assuring its holder the right to prevent third parties from producing, using, selling or importing (it may be added, from improving) the plant variety under protection, according to art. 42 of the Industrial Property Law.

Brazil made the political choice, upon joining the WTO, of not adhering to the plant patenting system. It adhered to the UPOV (1978 minutes) and produced legislation on Industrial Property and Cultivars, internalizing the internationally assumed commitments. In the dispute under analysis, the farmers only demanded respect for the Farmer's Privilege; however, when the STJ judged that transgenic soy should be submitted for patenting, it removed all the protection present in art. 10 of the Cultivars Law, also ruling for the inapplicability of the Breeders' Law.

3 Privatization of life, formal seed systems and genetic erosion

The TRIPs/UPOV system was internalized through the Cultivars Law, of 1997, and the Industrial Property Law, of 1996, forming a national microsystem⁸. The former protects plants through certification; the latter, other inventions through patents. A plant is considered a cultivar if it has a minimum margin of

8 With regard to plant varieties, Law 10,711/2003 (Seed law) was enacted in 2003. Thus, the cultivars law of 1997 and the seed law of 2003 are the two main legal milestones with regard to seedlings and seeds in Brazil. The former regulates intellectual property rights over cultivars; the latter establishes parameters for the production, commercialization and sales of seeds in the national territory. They are legislations with distinct but complementary objects, creating a formal system of plants, seedlings and seeds, which means that any commercialized plant or seed must be certified, meeting, therefore, the legal criteria.

distinguishable descriptors that are homogeneous and stable for successive generations (BRASIL, 1997, art. 3, IV). It must also prove its cultivation and use value⁹ (BRASIL, 2003, art. 2, XLVII).

Descriptors are phenotypic characteristics observed in plants and must be stable across later generations. A random consultation of the National Cultivars Registry (RNC) (MINISTÉRIO DA AGRICULTURA, 2020) can be useful to understand the legal requirements. For example, corn 12B0096PW, owned by DOW, has the following descriptors: the first leaf has a rounded tip; the grain is semi-hard; it has a small angle between the leaf and the stem, just above the cob; among other specific descriptors. As can be seen, well-defined, fixed, phenotypically objective and stable characteristics are necessary to obtain certification.

The formal system presupposes a fixist conception of the plant¹⁰, in which it must maintain a stable intergenerational pattern. This goes against the very notion of biodiversity, but meets the demands of commercial agriculture, the result of the Green Revolution, of industrial standard, in which the plants must fit machines' standards (MOONEY, 1987; SANTILLI, 2009).

Grain is the central element of agriculture, whether traditional or industrial (KLOPPENBURG, 1988). In the 12,000 years of agriculture's existence, selecting, saving and exchanging seeds has been a permanent activity among farmers. There is a constant adaptation of food to different types of soils, climates and cultures, in a dynamic exchange between human beings and nature. As a consequence, there is a continuous adaptation/improvement of plants, allowing the existence of agricultural activity and its crops in different parts of the globe and generating biodiversity (MOONEY, 1987; SANTILLI, 2009).

Culture and nature walked together until the emergence of the Green Revolution. Currently, there are thousands of species of rice, potatoes, cassava, corn and other domesticated plants, adapted to different geographic and environmental conditions, in addition to being fundamental parts of different cultures. Agrobiodiversity is the concept used for this biodiversity of agricultural crops (SANTILLI, 2009).

There is no need to say that seed improvement is something new or that it started in the 1970s with the Green Revolution (MOONEY, 1987; SHIVA, 2015), on the contrary. It is not the exclusive product of scientists in their

⁹ The governmental criteria for calculating the cultivation and use value have received several criticisms, as they are generally limited to qualities aimed exclusively at industrial agriculture (MOONEY, 1987; SANTILLI, 2009).

¹⁰ For the fixist paradigm, the homogeneous, genetically stable plant variety is the perfect model plant. With the emergence of UPOV, homogeneity, stability and distinctive characteristics became mandatory for registration in seed registers (SANTILLI, 2009). The consequence is greater genetic uniformity, less biodiversity and, therefore, genetic erosion (MOONEY, 1987).

laboratories, but mainly of farmers who have traditionally adapted plants to local and cultural specificities, in a rich, diverse and dynamic exchange between human beings and nature.

Historically, the improvement developed by farmers on their properties has not generated stable plants, with very characteristic and demarcated descriptors, but an active, constant and dynamic improvement. In traditional (or non-industrial) cultivation, there will certainly not be an identical cornfield or all standardized soybean plants, as in monocultures resulting from certified seeds, in which there is phenotypic identity and genetic uniformity (MOONEY, 1987). Its development is not fixed, it is constant, as nature and culture are alive and diverse. For this reason, they are permanent sources of agrobiodiversity (SANTILLI, 2009; SHIVA, 2015).

Industrial agriculture, the result of the Green Revolution, epistemologically, does not understand culture and nature as elements that are integrated. It is not interested in a dynamic, fluid system which understands seeds as humanity's heritage and is based on the wisdom and action of billions of farmers around the world. It is important to obtain oligopolistic control, not from its use value, but from its exchange value, making the seed a product for the market, that is, an agricultural commodity¹¹. The Green Revolution is not based on the culture/nature relationship and the resulting agrobiodiversity, but is focused on the market, industrially producing homogeneous grains on a global scale (KLOPPENBURG, 1988; POLANYI, 2012).

To appropriate the seeds, the market needs to remove them from the hands of farmers, separate them from the interdependence between subject and nature. For this, there is the disqualification of farmers' knowledge, the disregard of their historical role and the creation of a formal system, in which the only grain that can be commercialized is the one that is certified, registered, stable, uniform and produced by technicians in their professional laboratories. The focus comes to be large-scale commercialization, to the detriment of local production and circulation (SANTILLI, 2009). One of the most eminent effects is genetic erosion and dependence on large monopoly companies, which will be the few owners of the cultivars consumed by global agriculture.

In Brazil, restrictions on unregistered varieties are very clear when reading art. 1 of the Seed law, when it states that the objective of the national system

¹¹ The commoditization of seed is its transformation into a commodity. As Polanyi (2012) defines, merchandise is a product made for sale in the market. Its use value, complex and multidimensional, is reduced to a one-dimensional value (seed as marketable seed) (KLOPPENBURG, 1988; WITTMAN, 2009).

created by it is “[...] to guarantee the identity and quality of the material for plant multiplication and reproduction produced, marketed and used throughout the national territory” (BRASIL, 2003)¹². As can be seen, the law creates the quality conditions for the sale of seeds, but also limits all domestic trade to certified cultivars, leaving informal grain systems as exceptions (SANTILLI, 2009).

The Seed law (art. 8º, § 3º) only allows family farmers, agrarian reform settlers and indigenous people to multiply grains and seedlings for distribution, exchange and commercialization among themselves. In other words, informal systems, which were the rule, became the exception. Creole seed, which is not certified, has become a possibility restricted to a few social groups. When it is used by those who do not fit the legal exception, it is called Pirate seed, in a complete inversion of the historical logic of agriculture. Those who use uncertified grain become susceptible to sanitary control, being subjected to punishments resulting from their illicit act.

The Law acts to create yet another commodity, in a free and self-regulated market dominated by a few monopolistic companies (POLANYI, 2012). For example, currently, five companies dominate the registered transgenic patents in Brazil: Bayer/Monsanto, 44%; Sygenta, 17%; Dow, 17%; Dupont, 16%; Embra-pa, 2%; others 4% (VICENTE *et al.*, 2020). As you can see, only one is public. There is the growing concentration and monopolization of the market, with the farmer increasingly losing control over the central element of agriculture. The result is a growing erosion of agrobiodiversity, in clear disagreement with the constitutional duty to preserve the diversity of the national genetic heritage (art. 225, § 1, II, CF/88).

When farmers lose control of seeds, there is a consequent and already visible impoverishment of crops. The seeds will be subjected to the logic of uniformity and large-scale production, which are two of the main causes of genetic erosion (FAO, 1997; MOONEY, 1987). For example, the United States produces only twelve of the two thousand types of potato, corresponding to 40% of the entire crop (SHIVA, 2015).

All this discussion is not disconnected from the Special Appeal under analysis. As already mentioned, it will be fundamental for understanding the political-legal assumptions that were behind the dispute and that were not taken into account by the STJ. That is, what was involved was not just a question of ownership, but the rights to agrobiodiversity, food, agriculture, culture. However, the

¹² Article 11 of the same legislation states that “the production, processing and commercialization of seeds and seedlings are conditioned to the prior registration of the respective cultivar in the RNC”.

Court (2019) expressly refused to take them into account.

As will be seen, the STJ neglected the reasons that led Brazil to join the UPOV, not adhering to the general patent system established by TRIPs. As a result, the Court did not consider the whys of the national Cultivars law and its two protective mechanisms, the Plant Breeders' Right and the Farmers' Privilege, which safeguard the public dimension of the grain.

Given what has been developed so far, the next topic will deal with the foundations of the decision that allowed the patenting of the transgenic seed, contributing to the advance of the privatization of life.

4 STJ and the patenting of transgenic seeds¹³

In the decision handed down, the reporting minister demonstrates that she is aware that the internal legislation is, to a large extent, the result of the international commitments assumed by Brazil in the WTO, due to the ratification of TRIPs and UPOV. It does not go unnoticed that the Brazilian legislative option was the result of an intense national debate in the respective legislative houses, with the broad participation of multiple social actors (BRASIL, 2019). The rapporteur also recognized that plant varieties find protection in a specific legal diploma, the Cultivars law (BRASIL, 2019).

The minister pointed out that art. 18, of the Industrial Property Law, recognizes the possibility of patenting transgenic microorganisms, but expressly prohibits the patenting of microorganisms found in nature, as well as all or parts of plants and animals, pursuant to art. 10, X (BRASIL, 2019). For the patenting of transgenic microorganisms to occur (art. 18, III), novelty, inventive activity and industrial application must be proven (BRASIL, 2019).

The minister concluded her vote by stating that the Industrial Property law – therefore, patenting – must prevail over transgenic seeds, as the inoculation of the gene makes the cultivar resistant to glyphosate, an effect that remains in subsequent generations (BRASIL, 2019). According to the rapporteur, Monsanto has the inventive activity on “a specific transgenic process and its respective product (related to the CP4 EPSPS gene)”¹⁴. In other words, the multinational owns the technique of transforming a plant into a transgenic one, which, by inserting the

¹³ The vote of the rapporteur, Minister Nancy Andrighi, was the basis of the STJ's decision, being accepted by all ministers. The opinion, by Minister Marco Buzzi, only ratified the arguments already brought by the rapporteur. Thus, this part of the article will focus on the fundamentals brought by it (BRASIL, 2019).

¹⁴ It should also be noted that Monsanto's patent PI 1100008-2, the basis of the controversy, has been extinct since August 31, 2010 (BARBOSA, 2014). From reading the vote it is not clear what this respective product is: the gene, the plant or the effects of the gene on the plant.

gene into the plant variety, makes it resistant to glyphosate (BRASIL, 2019).

Monsanto would then have the right to impose its legal prerogatives on third parties, having, even in the face of replanting, “the right to exploit this plant exclusively in Brazil or prevent third parties from using it commercially, without its authorization” (BRASIL, 2019). With that, the STJ excluded transgenic plants from the scope of protection of the Cultivars law, disregarding the Farmer’s Privilege and the Plant Breeders’ Right¹⁵.

5 Inventive activity and patenting of microorganisms

The dispute under analysis was the first and only time that the STJ had the opportunity to position itself on the legal regime that governs transgenic cultivars. The judgment created a precedent that must be followed by magistrates across the country. The STJ’s decision is based on two main grounds that are problematic and deserve to be analyzed: the protection of the transgenic process (human inventive dimension) and of the gene (transgenic microorganism).

Associating the gene with a microorganism was the basis for the decision. However, according to the STJ, it was not enough to protect the transgenic technique (the inventive activity) or the gene. Since the intended effect was the plant’s glyphosate resistance, the powers arising from the intellectual property should reverberate to the plant as a whole. Despite the express legal ban on the patenting of living organisms, this was the result of the STJ’s decision.

Monsanto has been defending the thesis of the gene as a microorganism in other similar cases around the world, as occurred in 2018 in New Delhi, India, where it was also discussed whether Roundup Ready soy should submit to the national cultivar law or patenting (PESCHARD; RANDERIA, 2019). It seeks, therefore, to explore the legal permissive of TRIPs and the national laws that guarantee the patenting of transgenic microorganisms.

The origins of this debate are old, referring to the case “Diamond v.

¹⁵ One of the points faced by the rapporteur was the farmers’ allegation that the payment of royalties on the replanting of Roundup Ready soybeans would violate the principle of Exhaustion (BRASIL, 1996, art. 43, VI). According to this principle, once someone has lawfully purchased a product, the holder’s powers over the acquired object cease (BRASIL, 2019). The rapporteur argued that the Industrial Property law (art. 43, VI) expressly excluded the principle of Exhaustion when the protected product is used in the “commercial multiplication or propagation of living matter [...]” (BRASIL, 2019). That is, Monsanto’s patent and its right to royalties apply to the seed directly sold by it to the farmers, as well as to that resulting from planting and multiplication by the farmer himself. In summary, it is confirmation that there is no Farmer’s Privilege. Contrary to what was interpreted by the STJ, the legal exception to the principle of Exhaustion, with regard to living matter, must be understood as a restriction on the living matter that can be patented, that is, transgenic microorganisms, which cannot be this is the case of soy – which will be seen in the next topics of the article (BRASIL, 2019).

Chakrabarty” in the United States, which built the North American precedent on the subject and had an impact on the understanding of several other countries (PESCHARD; RANDERIA, 2019).

In 1980, breeder Chakrabarty applied to the US registry office for a patent on a transgenic bacteria capable of metabolizing crude oil. The request was denied on the grounds that living organisms were not patentable. The case was taken to the US Supreme Court, which ruled in favor of Chakrabarty. The precedent was a milestone, as, for the first time, a living being was patented (PESCHARD; RANDERIA, 2019).

All countries that are part of the WTO are obliged to recognize the patenting of microorganisms. Monsanto has filed lawsuits in several countries, alleging that a gene is a microorganism, to ensure protection for Roundup Ready soy and guarantee its royalties. This is what happens in the Brazilian dispute under analysis and what also happened in India, in 2018, in the case “Nuziveedu v. Monsanto”. However, the High Court of Delhi did not admit this thesis, stating that a sequence of nucleotides does not have autonomy, that is to say, it does not have an existence of their own (PESCHARD; RANDERIA, 2019).

As Peschard and Randeria (2019) clarify, there is no international definition of what a microorganism is, and it must be clarified by each country’s patent offices and legislation.

Analyzing the national legislation and the INPI guidelines, it can be concluded that in Brazil there is normative clarity on the subject, and it is possible to say that a gene is not a microorganism. Brazilian law states that “[...] transgenic microorganisms are organisms, except for all or part of plants or animals, that express, through direct human intervention in their genetic composition, a characteristic not normally attainable by the species under natural conditions” (BRASIL, 1996, art. 18, sole paragraph).

By this definition, a microorganism must be an organism and have a genetic makeup. Law 11.105/2005 (BRASIL, 2005, art. 3, I), in turn, defines an organism as “every biological entity capable of reproducing or transferring genetic material, including viruses and other classes that may become known” (BRASIL, 2005). A gene itself cannot be considered an organism, as it is not capable of reproducing or transferring genetic material. Consequently, it cannot be understood as a microorganism.

The INPI also presents very clear guidelines on the subject. Through resolution 144, of March 12, 2015, it instituted guidelines for patent applications related to biotechnology, defining precisely what a microorganism is. There is a

thread dedicated to the topic, which starts like this:

The generic term “microorganism” is used for bacteria, archaea, fungi, unicellular algae not classified in the Kingdom Plantae and protozoa. Thus, among all or part of living beings, natural or transgenic, the LPI only allows the patenting of transgenic microorganisms (INPI, 2015, p. 26).

Taking resolution 144/2015 as a parameter, plants and protozoa could not be classified as microorganisms. Namely, a CP4 EPSPS gene, much like Roundup Ready soy cannot be included in the exception of art. 18, III, of the Industrial Property Law (SILVEIRA; SILVEIRA, 2020). The gene is not patentable because it is not an organism, because it is part of a plant, being subject to legal prohibition.

The STJ’s decision points to the following sentence as a basis for ensuring the patenting of transgenic soy: the guarantee of “[...] a specific transgenic process and its respective product” (BRASIL, 2019). Since the gene cannot be considered a microorganism, it would be possible to interpret that the object of protection was not the gene, but the inventive activity, that is, the technology invented by Monsanto.

The CP4 EPSPS gene is the basis of Monsanto’s patented transgenic process. It was isolated and introduced into other living beings, enabling them to acquire pesticide resistance (AMORIM, 2011; GREEN, 2007).

Glyphosate acts by blocking the EPSPS enzyme produced by plants, bacteria and other microorganisms. With the introduction of the CP4 EPSPS gene, the enzyme’s composition is modified, preventing the poison from blocking it, making the plant resistant to glyphosate (CHRISTOFFOLETI *et al.*, 2016).

Monsanto uses a gene that already exists in nature and inserts it into an organism, in this case, soybeans, making it resistant to glyphosate. Monsanto’s inventive activity, which can indeed be patented, is the development of this technique. The gene is not a creation of the company, it already exists in nature, and must remain in the public domain (BRASIL, 1996, art. 10, IX) (SILVEIRA; SILVEIRA, 2020).

If the technique is used in a microorganism, it may be patented, as guaranteed by national and international legislation. However, if the technique is used in a plant or in another living organism, there is no legal support for patenting, as transgenic organisms cannot be patented in Brazil. Transgenic soybeans are part of this second possibility, so even if the technology can be patented, the STJ should not have extended its effects over the entire plant as it was done.

6 Prohibition of double protection

The Brazilian State made a clear choice for not patenting cultivars. It decided to choose two distinct and complementary regimes, primarily with the aim of preserving the Farmer's Privilege and the Plant Breeders' Rights, establishing minimum protections for genetic resources and agrobiodiversity, two fundamental rights.

Brazil, moreover, adhered to the 1978 minutes, which prohibit double protection, that is, the plant must be protected either by patent or by certification only, and cannot be simultaneously protected by both. It should be noted that this is one of the main differences between the minutes of 1978 and 1991, as this restriction is not imposed in the second document (SANTILLI, 2009).

When joining the UPOV, Brazil could adhere to the 1978 or 1991 document, but chose to assume the commitments of the former. As a result, the prohibition of double protection was internalized by means of art. 2 of the Cultivars Law, that is to say, cultivars are regulated exclusively by this legislation, and cannot be subject to the effects of patenting.

The double protection prohibition was alleged by the farmers in the process, but rejected by the STJ. According to the Court, the object of the patent is not the plant variety, but the "insertion process and the gene itself inoculated by it in the soybean seed" (BRASIL, 2019). According to STJ's decision, a plant would have two distinct objects of legal protection: (1) the whole plant, not genetically modified, which would be protected by the Cultivars law; (2) the inserted genetic material and its inventive process, artificial elements, which would be protected by the Industrial Property law.

The rapporteur admitted the prohibition imposed by the double protection, but nevertheless adopted a position that denied it. According to her, while the Cultivars law protects the plant as a whole (natural dimension), the Industrial Property law protects the transgenic process (human inventive dimension) and the gene (transgenic microorganism). Thus, the legal prohibition would be respected because it is about different legal objects (BRASIL, 2019).

The minister's position followed a contradictory logic, disrespecting the logic imposed by the national intellectual property system and disregarding the motivations for the international choices made by Brazil and the resulting commitments, that is, the reasons for the existence of a dual system.

It should not be argued that a transgenic variety has two objects to be protected. The objective of prohibiting double protection is exactly to curb such

reasoning as that. Monsanto's proprietary rights protected by patent cannot extend to the plant as a whole.

7 Transgenic seeds and respect for the Brazilian Law

When analyzing the STJ's decision, the conclusion reached is that it is not a good interpretation of Brazilian Law, that is, it is not a decision that takes into account the reason for the double system of protection of intellectual property, the system of infraconstitutional rules, as well as the answer that would best guarantee fundamental rights (BRASIL, 2019; DWORKIN, 2003).

For a better decision on the dispute, the STJ should have gone back to the past, to the history of Brazilian law, to the national institutional history and taken seriously the reasons why Brazil adopted the 1978 UPOV minutes, adopted two systems of intellectual property (certification and patent), having vetoed the patenting of living organisms and having assumed the prohibition of double protection. These are choices of the Brazilian Legislative and Executive branches, which internalized international treaties with the clear objective of guaranteeing farmers free replanting (Farmer's Privilege) and scientists free access to plants (Plant Breeders' Rights).

The Brazilian State had the option, upon joining the WTO, of adhering to the TRIPs without establishing a *sui generis* system for seedlings and seeds. However, the option was to join the UPOV, in the 1978 minutes. These choices represent the national institutional history, which serve to understand and interpret the current legal system. Looking to the past is important for a constructive-interpretive attitude, which respects the Law's duty of coherence (DWORKIN, 2003).

The Court also did not offer the best interpretation of the Brazilian system of rules regarding what is meant by microorganisms. The system of rules that regulates intellectual property in Brazil does not allow (albeit indirectly) that the transgenic cultivar is subject to the effects of patenting. The laws on Cultivars, Industrial Property, Biodiversity and INPI resolutions bring very clear determinations for settling the dispute: (1) prohibition of double protection; (2) prohibition of patenting living beings, in whole or in part, including the genome or germplasm, except for transgenic microorganisms; (3) definition of microorganisms as organisms, biological entities capable of transmitting genetic material; (4) clarification that only bacteria, archaea, fungi, unicellular algae, not classified in Kingdom Plantae and protozoa, can be considered microorganisms. From a systematic look at the legal and infralegal rules, there is little margin for considering a gene as a

microorganism or subjecting the transgenic cultivar to the effects of the patent.

Finally, the Court did not take into account the risks of its decision to nationally and internationally guaranteed fundamental and human rights. The STJ (BRASIL, 2019) expressly did not take into account questions of a social and environmental nature, as it understood them as political-social motivations, not legal ones, and therefore external to the judgment. The consequence of this was to disregard fundamental rights, which would be relevant to the decision of the case.

The deprivation of the Farmer's Privilege and Plant Breeders' Right does not only mean a more costly agriculture for soybean farmers, but is also a concrete risk to the right to (agro)biodiversity and to the environment. The STJ opened a precedent that allows all transgenic seeds to be subject to the Industrial Property law, which can be soy, corn or any other crop. Farmers will have to pay royalties for each harvest, and the right to research and genetic improvement will not be broad either (BRASIL, 2019).

The right to preserve and multiply seeds is a farmer's human right, protected in international documents, such as the United Nations Declaration on the Rights of Peasants, approved in 2018. Historically, farmers have been promoters of agrobiodiversity, subjects of improvement and adaptation which is fundamental to the challenges that world agriculture is already experiencing in a moment of profound climate change. Therefore, guaranteeing farmers access to and multiplication of seeds is a Human Right, for farmers, but also for all people.

The STJ's decision, by recognizing the possibility of patenting transgenic seeds and plants, deepens the process of privatization of nature and living organisms, distancing farmers from free use and improvement. It affirms the privatization of life to the detriment of seeds and their respective genetic materials as world heritage (BRASIL, 2019).

The judge, faced with difficult cases, must offer a decision that respects the complexity of the facts, the system of rules and the set of fundamental rights involved. The STJ did not respect the logic of the Brazilian intellectual property system and disregarded the best adequacy of fundamental rights to the concrete case, disrespecting the history, system of rules and constitutional commandments of Brazilian Law (BRASIL, 2019; DWORKIN, 2003).

Conclusion

Seeds are the basis of agriculture and fundamental to food sovereignty. Pressure from international corporations, such as Monsanto/Bayer, for patenting

denies the public dimension of grains. The thousands of plant varieties, which currently serve as the basis for scientific research around the world, are the result of the peasant/nature relationship, which for twelve thousand years has been selecting and adapting its crops to different locations.

Genetic erosion is already a reality. Formal seed systems, which ignore the importance and rights of farmers in favor of intellectual property rights, are one of the main reasons for this phenomenon. It was in this context that the STJ ruled on the possibility of patenting transgenic seeds. The Court had before it a case that involved numerous rights and with enormous economic repercussions. It disregarded national institutional history, worked with a mistaken view of micro-organism and extended intellectual property powers over the entire plant, despite express rules to the contrary.

The result was a precedent that imposed patent limitations on all transgenic varieties, affecting the Plant Breeders' Rights and the Farmers' Privilege. The Court thereby took a step towards the privatization of life, distancing the Brazilian legal system from the struggle for the seed as a peasant right and as a global public asset.

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