

INTELLECTUAL PROPERTY RELATED TO TRADITIONAL AND MODERN AGRICULTURE IN SERBIA¹

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Summary

Agricultural progress has been the most important factor which leads to humans' civilization. The world has progressed in such a rapid manner that traditional agriculture has aggressively been replaced by modern agricultural approaches and methods. Traditional knowledge and innovations relating to food and agriculture are widespread, viable and sustainable. The subject matter of protection traditional knowledge may include agricultural, environmental and knowledge associated with genetic resources. Protection of the traditional knowledge and results of the modern agriculture, under existing models of intellectual property rights could involve: copyrights, patents, plant varieties, trademarks, geographical indications and appellations of origin. While patents protect new and inventive products and processes, geographical indications protect traditional knowledge and skills associated with certain products which are typically passed down through generations, and have a strong link with the underlying geographical territory.

Key words: *intellectual, property, traditional, modern, agriculture*

JEL: *K49, Q19*

Introduction

A special attribute to protection of traditional knowledge in the field of agriculture is enhanced by adoption of the (Convention on Biological Diversity, CBD, Nairobi, Kenya, 2000) [14]. In the years that followed, the protection of traditional knowledge in many countries is approached in organized and systematic manner. However, dichotomy

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- 1 This paper was prepared within the projects: III-45017 and OI-179001 financed by the Ministry of Education and Science of Serbia
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between local, traditional and scientific knowledge is taking a stand for discussions and new researches. Scientific workers and experts are looking for answers to the questions such as: how do traditional and scientific knowledge make an impact to ecology; does organic agriculture provide for sustainable diversity?

Specifically important is to stipulate a relationship between the Convention on Biological Diversity and the Agreement on trade aspects on intellectual property rights, which, among other things, defines patents, trademarks and geographical indications and appellations of origin [11]. As a result thereto, the human environment protection was focused to be of specific care, in providing quality and safe food and the implementation of intellectual property into the development programs subject to elevate the products' value.

Elements of Intellectual Property

Intellectual property (**IP**) is a sum of property and moral rights which protect certain intellectual properties, under the legal terms and conditions and with certain limitations. The intellectual property includes copyrights and related rights and industrial property, patents, trademarks, design protection rights, geographic indications and appellations of origin, protection of plant varieties. According to the Serbian Patent Law [23] and international patent conventions (the Agreement on Trade Related Aspects of Intellectual Property Rights, TRIPS [11] and European Patent Convention, EPC [15]), a **patent** is territorial, exclusively monopolized, and timely limited right to 20 years from the day of patent application filed, recognized as invention in whatever technical field, which is new, with inventive level of approach and industrially applicable. EPC and the Serbian Patent Law have retained the following exceptions of patentability: "Methods for treatment of the human or animal body by surgery or therapy, and diagnostic methods practiced on the human or animal body; plant and animal varieties and essentially biological processes for the production of plants and animals", (USA Patent Law doesn't fall in such type of exception [31]). The **trademark** is the right which protects the trademark in trading to different goods, i.e. services of an individual or legal entity against identical or similar goods, i.e. services of other individual or legal entity. The trademark is valid for 10 years but can be unlimited. The longer it is used, the more recognized it is, its value increasing along with the value of goods and services it marks [24]. **Industrial design** means legal protection of exterior (three dimensional or two dimensional) of industrial or craftsman product [25]. According to the TRIPS Agreement the member counties are free to regulate protection of geographical indications at national level, provided it complies with the minimum standards set by TRIPS. As a result, certain countries, such as the US, argued that geographical indications (GI) are sufficiently protected under existing trademark laws, but the European Union demanded *sui generis* protection and the establishment of a multilateral register [1]. According the Law on **geographical indications** of Serbia, the geographical indications are name of origin and appellation of origin. It is used to mark natural, agricultural, foodstuff and industrial products, craftsmanship products and services. The stipulations of the subject law are not applicable to wines and brandies as it is defined by special regulations. Appellations of origin is the appellation which identifies

a certain product as the product from a defined territory (country, region or location), which quality, reputation or other traits can be attributed to its geographic origin where to its production and /or processing and/or preparation are proceeded at a defined and limited region [26]. **Plant varieties** are protected by a special law which regulates rights of plant sort selectors [21].

Protection of Intellectual Property in Modern Agriculture

Inventions in modern agriculture are frequently based on biotechnology [2]. Modern biotechnology, which involves a number of techniques used to convert organically certain biological matters (cells or chains of plant and animal cells, enzymes, plasmids and viruses), transformations in micro-organisms, in plants or animals or to provoke changes of inorganic matters biologically, provides for a vast opportunity to inventions and patent protection. By introduction of alien gene into micro-organism which is a recipient either in fertilized egg or embryo cells, transgenic organisms are generated which could have various useful applications but can also increase risk to human and animal health. The generated transgenic plants became a very lucrative system for the production of biomaterials or pharmaceutical raw materials. By genetic modifications in plants, the yields increase as well as contents of useable matters. The new generated plants are resistant to frost, plant viruses, insects and other pests or tolerant to herbicides. Introduction of patent rights and possibility of technology transfer lead to increasing interest for such projects and more sizeable number of investors involved [7,8].

Cooperation between the World Trade Organization (WTO) and the World Intellectual Property Organization, **WIPO**, led to adoption of the Agreement on Trade Related Aspects of Intellectual Property Rights (**TRIPS**) [11]. TRIPS thus provided for harmonized regulations on international level and affirmation of intellectual property. In the field of patent rights, TRIPS stipulates that patents may be assigned for inventions, either products or procedures, in any field of technologies, if they are new, incorporate inventive level and suitable for industrial application. However, the members of WTO may exclude from patentability (art. 27.4b): plants and animals except microorganisms, essential biological procedures for production of plants or animals except non-biological or microbiological procedures. The members of WTO are to provide protection of plant varieties either by patents or *sui generis* system or by combination thereof. Compared to patent protection of plants and plant varieties, the two systems are accepted worldwide: patent system in the USA which does not recognize exception related to patentability, the patents can protect plant and animal varieties, there is a system to assign patents for plants (The Plant Patent Act) and protection of plant varieties selectors rights [31]; and the system according to the European Convention Patent (ECP) which includes exceptions related to plants and animals varieties patentability whereto the countries define protection of varieties by a separate law [15]. In addition to the regulations contained in the ECP, the adoption of the Biotechnological Directives EC 98/44(1998) is important for the members of the European Union which additionally regulates the subject field [12]. According to the Directives, the biological material isolated from the natural environment or produced by applying technological procedures, can be the subject of innovation although

already present in the nature. The following are not considered patentable: a) plant and animal varieties; b) essential biological procedures for growing and breeding plants and animals. Thereof, in those countries which coordinated their regulations with the European Union, the inventions which refer to plants and animals can be patented if the innovation application is not technically limited to a specific plant and animal variety, i.e. possibility to be awarded patent depends on level of improvement and innovation within the innovation introduced by a human. The biological materials, prior to filing the patent application is to be deposited in the depositary institute according to the Budapest Treaty on international recognition of the deposit of micro-organisms for the purposes of patent procedure [13].

Intellectual property rights (and their realization and valuation) are very important in the field of the agriculture, especially patents, trademarks and geographical indications [4-6]. Intellectual property (IP) valuation is, actually, a conscious process aimed at determining the monetary value of underlying IP assets. There are three generally accepted accounting theories for valuing patents and trademarks: market, cost, and income [6]. Market theory values an asset as the present value ascribed to similar assets in an active public market; the cost theory values an asset by the cost of replacing the asset; and the income theory values an asset by the present worth of the net anticipated economic benefit of the asset. Depending on the legal system granting protection to geographical indications, issues of control and valuation are differently. It is important to say that in the US model of the protection GI, in contrast to trademarks, which are distinctive signs identifying goods of an enterprise and thus not limited by territorial link, geography is at the heart of geographical indications (Marsden 1998). In developing countries, it is important to identify the economic issues relating GI protection on the national and international level, especially their national intellectual and cultural heritage as well as their biodiversity [1], what is especially important for rural development [10].

Patent Related Regulations and Practice in Serbia

Although Serbia is not the member of the European Union, the Law on Patents (2011) [23] is accorded with the ECP and the text of the Law contains certain regulations of the Biotechnological Directive EC 98/44. The regulations of the Law related to the subject of the protection gives a detailed explanation of the biological material. The article 7 it is stipulated: “The subject of the innovation to be protected by patent rights can be a product or procedure, use of the product and use of the procedure”. Also, the subject of invention to be patent protected can refer to:

- 1) Product consisting of biological material or contains biological material;
- 2) Procedure by which the biological material is produced, treated or used;
- 3) Biological material which is isolated from natural environment or produced by technical procedures, even if already existing in the nature.

The practice to assign patents in the field of biotechnology by the Intellectual Property Office of Serbia (former Yugoslavia) is coordinated with the practice of the European Patent Office [20]. Therefore, the patent **YU 48600 B** is assigned, for the patent application P-1398/88, “Procedure for gene transfer in plants”. The patent claims which refer to transgenic

pollen, seeds and product propagation were not accepted since it could derive variety protection. There are three interesting patents of the Serbian inventors (Lazar Avramov and Darinka Stokic) which protect innovations that could contribute to development of organic agriculture and refer to organic fertilizers-substrates which contain: micro-organisms, viruses, microbes, fungi (mildew), enzymes, ferments or matters that being generated or being extracted from micro-organisms or animal materials, titled: "Procedure to obtain substrates to revitalize soil and to stimulate growth and fruitfulness of grapevines" **YU49181 B**, P-543/96; application to fruit trees **YU 49350 B**, P-586/96; with horticultural and garden plants **YU 49351 B**, P/619/96. Attention should be paid to the patent **RS 49990 B**, P-437/01, "DNA sequences related to maize transformant **PV/ZMGT 32 (NK603)** and preparations and methods for its detection", protects DNA molecule which contains nucleotide sequences identified as **SEQ ID** no. 7: or **SEQ ID** no. 8.

Plant Variety Protection

Complexity of the procedure to generate new plant varieties, size of investments and economic results issues, a need to regulate the trade of plant reproduction materials, providing intellectual property is protected, had an impact to organize the International Union for Plant Variety Protection (**UPOV**). According to the International Convention on Protection of New Plant Varieties [17], the variety defines a group of plant within a unified taxonomic category of the lowest recognized level, whereas that group, regardless to entirely fulfilled conditions and terms to recognize the rights of the grower, may defined through researches into the characteristics which are the result of genotype or a combination of genotypes; to differ from any other group of plants by expressing at least one of the mentioned characteristics and be considered a unit since it multiplies unchanged. The plant variety is protected, i.e. grower's rights are recognized when it is confirmed by testing that the new plant variety is distinctive (Distinct), uniform (Uniform) and stable (Stable) by applying related DUS growing tests.

Serbia has achieved significant results in creating and protection of new plant sorts but is not yet the member of the UPOV Union [21].

Protection of Traditional Knowledge

In addition to adoption of separate legal regulations for the protection of traditional knowledge, WIPO points to the fact that products based on traditional knowledge can be protected even on the grounds of the existing laws which protect the elements of the intellectual property [30]. Thus, if, apart from the traditional knowledge, the product is innovated, incorporates the elements of new approaches and inventions, it is possible to protect the patent. The product will be trademarked, it can be a protected design but the broad opportunities are in the field are geographic indications and appellation of origin. It is of utmost importance that the national institutes for intellectual property include relevant documentation referent to traditional knowledge into data bases to check states of techniques and thus will prevent to assign patents for innovations based exclusively on

traditional knowledge. There is also a need to put together a national registry of the traditional knowledge based products, to be published and available to the public. Entitled to traditional knowledge have the right based on traditional and modern intellectual property rights since the contents of their knowledge is implemented at both levels. One of the problems in the protection of traditional knowledge/intellectual property is the collectivity in creation and properties of traditional knowledge. The problem could be resolved by guiding activities, i.e. checking the options for collective assignment of the rights by associations, holders of traditional knowledge. The protection and affirmation of the traditional knowledge can substantially contribute to rural development, i.e. development of each local community. In the European Union for agricultural products and foodstuffs exists the legal framework provided by Council Regulation (EC) No 510/2006 (enforced within the EU and being gradually expanded internationally via bilateral agreements between the EU and non-EU countries), promoting and protecting origin-labeled products. Actually, three EU schemes of geographical indications and traditional specialties known as protected designation of origin (PDO), protected geographical indication (PGI), and traditional specialty guaranteed (RSG) promote and protect names of quality agricultural products and foodstuffs [16].

Protection of Geographical Indications in Serbia

The Strategy of intellectual property development of Serbia for the period 2011 to 2015 [18], within the framework of activities, a special accentuation is given to a necessity to finance protection of geographical indications and appellations of origin of traditional and specific products [9]. At the beginning of 2011, 55 products were protected by the geographical indications and appellations of origin in Serbia, wherefrom 40 of them locally (to mention some of them: “Sremska domaca kobasica (Domestic sausage of Srem)”, “Sremska salama (Salami of Srem)”, “Sremski kulen (Spicy sausage of Srem)”, “Banatski rizling (Riesling wine of Banat)”, “Vrsacko sampion pivo (Champion Beer of Vrsac)”, “Kladovski kavijar (Kladovo caviar)”, “Apatinsko jelen pivo (Jelen beer of Apatin)”, “Karlovacki rizling (Riesling wine of S. Karlovci”, “Bezdanski damast”). A small number of protected trademarks have authorized users (only 14 of them, among which: “Futog fresh cabbage and sauerkraut”, “Krivovirski kackavalj (Hard cheese of Krivovir, “Homoljski med (Homolje honey)”, “Valjevski duvan cvarci (Special smoked lardons of Valjevo)”, “Svrljiski belmuz (Svrljig hominy)”. However, only one of the products is protected in the European Union “Homolje honey” in accordance with the Lisbon arrangement. There is also a public notion that “Futog sauerkraut” is in the international procedure for protection [19]. The Ministry of agriculture, trading, forest and water engineering of Serbia supports the projects which refer to traditional products through protection of geographic appellation of origin but also provides assistance to make them publicly affirmed and commercially available. Such products are, for example: “Leskovacki ajvar (Serbian spread of roasted eggplants & red peppers (or ajvar) from Leskovac)”, “Zlatarski sir (Semi-hard cheese of Zlatar)”, “Sjenicki sudzuk (Unique beef sausage of Sjenica)”, “Sremski kulen (Spicy sausage of Srem)” [27].

Development of Organic Production in Serbia

The organic production understands production of agricultural and other products by applying methods of organic production at all stages, from generating raw materials to final products, their packing, storing. It is based on natural processes and utilization of organic materials. The organic production excludes application of genetically modified organisms and products and use of ionizing radiation. It is not allowed to use synthetic or chemical agents for protection and nutrition of plants, or synthetic drugs, growth stimulants, hormones. The organic production is based on four principles: health, ecology, reliability and care. The integral part of the sustainable production system includes reasonably coordinated environment protection system (healthy environment, biological diversity, respect of biological cycles). The organic product is a certified product which holds the mark, incorporates warranted quality and health safety.

The organic production in Serbia has been developing for the last twenty years [3]. As a beginning of the organized approach to the organic production there could be mentioned the activity of the association *Terras* from Subotica and the formation of bio-school *Terras* [29]. The Law on organic production (2010) [22] is coordinated with the regulations of the European Union. A national association for organic production development of Serbia was established and titled *Serbia Organic* [28]. In order to stimulate organic production development in organized way there are four regional centers: at Selenca, Valjevo, Svilajnac and Leskovac. The Company “Zdravo Organik” of Selenca has a large number of cooperatives in Serbia, and it is considered to be one of the most modern companies for fruit and vegetable processing in the region, their products are exported to the markets of the European Union, America and Japan. The registered geographic appellations of origin from the regions rich in traditional knowledge and suitable for development of the organic production represent significant potential for the production and marketing of valuable products.

Conclusion

Intellectual property is important not only in the field of modern agriculture based on the science, but also in the field of traditional agriculture. A relationship between modern and traditional agriculture is best seen in the organic production. To protect biodiversity and human environment, production and safe and quality products by respecting principles of sustainable development are possible if applying traditional knowledge and modern scientific achievements. The protection of traditional knowledge, geographical indications and appellations of origin, patents, plant varieties, trademarks, i.e. intellectual property is of importance to establish reputation of the products warrants the quality and enhances product value. In Serbia, the importance of such approach in the development of agriculture is recognized and the goals are reached in organized and systemic manner. At the national level, numerous geographical indications and appellations of origin are applied to protect products which are the result of traditional knowledge but yet more is to be done to commercialize and to affirm them, as well as to protect and market such products, especially in the countries of the European Union.

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ITELEKTUALNA SVOJINA U TRADICIONALNOJ I MODERNOJ POLJOPRIVREDI SRBIJE⁵

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Rezime

Poljoprivredni napredak je najvažniji faktor koji dovodi do snažnog razvoja civilizacije. Svet je napredovao na takav način da je tradicionalna poljoprivreda brzo i agresivno zamenjena modernim poljoprivrednim pristupom i metodama. Danas su tradicionalno znanje i inovacije, koji se odnose na hranu i poljoprivredu, rasprostranjeni, životni i održivi. Zaštita tradicionalnog znanja može da uključuje znanja iz oblasti poljoprivrede, životne sredine i genetičkih resursa. Zaštita tradicionalnog znanja i rezultata moderne poljoprivrede prema postojećim modelima prava intelektualne svojine može da obuhvata: autorska prava, patente, zaštitu sorti, žigove, geografske oznake porekla i oznake (imena) porekla. Dok patenti štite nove i inovativne proizvode i postupke, geografske oznake porekla štite tradicionalno znanje u odnosu na izvesne proizvode, koje je generacijama proveravano i tipično za određenu geografsku teritoriju.

Ključne reči: intelektualna, svojina, tradicionalna, moderna , poljoprivreda

5 Ovaj rad je pripremljen u okviru projekata: III-45017 and OI-17900, finansiranih od Ministarstva za obrazovanje i nauku Srbije.

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