

CURRENT TRENDS ON GENETICALLY MODIFIED ORGANISMS

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Abstract

The extent to which activities are carried out in recent years the genetic modification of plants of different varieties gave rise to different reactions from the countries of the world. Largest growers of genetically modified organisms (GMOs) strongly support the benefits of new types of crops, but the opposite, other countries of the world contest usefulness of GMOs, citing several disadvantages rather than from the last two decades as a result of using genetically modified organisms in food. European Union expressed its disagreement with the large scale production of GMOs, maintaining long a moratorium on GM products. As a solution to have a minimum issue of GMO control, is called the precautionary principle as the basis for jurisprudence and legal basis in the activity.

Key words: environmental, genetic modified bodies, the environment, the precautionary principle.

INTRODUCTION

The problem is particularly present modern biotechnology, but also highly controversial. There is no unanimity of views on concerns about genetic modification of plants of different varieties. Depending on attitude toward the world states genetically modified organisms (GMOs), we can talk about the current "pro" OMG, on the one hand and the current "against" OMG, on the other hand. There are large countries growing genetically modified plant varieties that we have only their advantages and states that oppose the widespread use of genetically modified organisms. Each of the two sides made their strongly supports the chosen position with arguments, which confuses consumers because they do not know what is best for them.

GMOs - HISTORY AND CONCEPTUAL FRAMEWORK

Genetic engineering is a new technology involving gene manipulation by humans. It is defined as a set of methods and techniques that the desired genes are obtained in the laboratory, after which they are transferred to another body of the same species or different species for the production of biological structures anticipated new genetic properties. (Cîrlan Marius, 2005)

The first transgenic plants were created in 1983 as a result of the research teams worked independently at the University of St. Louis -

Missouri, Rijksuniversiteit Gent - Belgium, Monsanto - St. Louis, Missouri and University of Wisconsin. These plants were conducted under laboratory conditions by insertion of bacterial antibiotic resistance genes in tobacco (*Nicotiana* spp) and a gene from beans sunflower currently the most important transgenic crops are soybean, maize, tobacco, cotton, canola, tomatoes and potatoes. (Cîrlan Marius, 2005). This allows genetic genius today even create artificial genes or genetic modification of the same species, by inaction, modifying or adding any of its own genes. (Vasile Cristea, Denayer S., 2004). In Romania, no less than 27 acts outlines, in a complicated legal framework of GMO issues. The most worrying aspect is that of the large number of laws in this area, but their poor application to concrete situations. (www.infomg.ro) Romania cultivated varieties of genetically modified plants (soy and corn) since 1998, and its accession to the European Union was forced to align European standards. It is well known that the European Union has always expressed disagreement with the widespread cultivation of genetically modified plant varieties instead encouraged organic farming (organic).

In contrast, major GMO growing countries - India, China, USA, Argentina, Brazil - have as a main concern achieving higher production, more resistant, using the new discoveries of modern biotechnology. In terms of concept, the term GMO is defined differently depending on the specific laws of certain states. Romanian law purposes, a genetically modified organism is "an organism except human, whose genetic material has been altered in a way that does not occur naturally by mating and / or natural recombination" [GEO no. 195/2005, art. 2].

MATERIAL AND METHOD

The paper was submitted to the GMO issue from a perspective that aims to capture complex the advantages and disadvantages of new biotechnologies. Arguments "for" OMG, on the one hand and "cons" on the other hand, emphasize the dual perspective on GMO issues which divided the countries of the world into two camps - supporters and combatants of GMOs.

For complete analysis of bibliographical material has been used in Romanian literature, European and international law and developed the precautionary principle applies where shoulders regarding GMOs. Agreed working method is the comparative analysis the situation of GMOs in the three legal systems: national, European and international.

GMOs – ADVANTAGES AND DISADVANTAGES

In 2003, at a very high level meeting between U.S. and EU leadership, problem GMOs was analyzed on a par with other major contemporary problems of humanity. Americans are to promote GMOs, as they assert, products obtained from the genetically modified organisms by high yields that are achieved as well as other valuable features, could contribute to global food security. On the other hand, Europeans say they have nothing against these products, but considering that there have been enough studies to prove that genetically modified products are not harmful to health and the environment. (Cristea D. Michael, 2007).

a. Advantages of genetically modified organisms

According to a report by FAO (2001) (estate and Agriculture Organization of the United Nations) practical potential benefits of biotechnology are: improving the nutritional value of foods high consumption, reducing environmental impact, improving efficiency in fisheries, increased absorption for animal feed of chemicals, tolerance to poor environmental conditions. (www.infomg.ro]

b. Disadvantages of genetically modified organisms

Although the list of benefits is quite long, it is followed by a list of equally consistent drawbacks, which outweigh the first, and scares optimists who believe not only brought good genetic modifications. Here are some of the disadvantages of genetically modified production: excessive breeding, which would make a genetically modified plant invader of agro ecosystems, modifying biochemical cycles (nitrogen and carbon cycles) inappropriate transfer of transgenes to other plants, cultivated or wild flora, following the occurrence of a "gene flow" through pollen carried by wind or insects negative influence on the interaction between species (prey-predator relationships, parasitism) and unanticipated direct impact on non-target species (e.g., reduction of food resources or the habitat upon which the survival of other organisms) due to changes in population dynamics of transmission of a character unintentionally modified transgenic plants related species of wild flora. [www.infomg.ro].

Achievements, especially extremely promising possibilities of genetic engineering should not divert people's attention to the risks involved in using it without close supervision. The biggest fear is based on the premises to obtain by recombinant DNA technology by pathogenic organisms which once escaped into the wild (intentionally or willfully) may cause unknown diseases or catastrophic ecological imbalances. One of bioengineering projects, for example, expects to convert cellulose into liquid and gaseous fuels, to imagine what it would mean for the planet green shell

escape into the environment of genetically modified organisms for cellulose degradation. (Gogu I. Gheorghiuță, 2002).

THE POSITION OF THE EUROPEAN UNION TOWARDS GMOs

European legislation does not prohibit the use of genetically modified organisms, but establishes a legal framework to ensure maximum safety for human health and the environment. In European Union countries, the activities of production, testing, use and marketing of GMOs are subject to a special regulation, authorization and administration. Long time, the EU has maintained a moratorium on GM products with a predominant policy "against" invasion GMOs. However, in 2004, the moratorium imposed in 1998 was lifted on 19 May, the Commission decision approving the importation of sweet corn borer resistant Bt 11 for use in human food, fresh or processed.

After the lifting of the moratorium, the European Commission approved the import of GM maize NK 603, tolerant glisofat, for use in human food, animal feed and industrial processing purposes. Also in 2004, on 8 September, the European Commission approved the inclusion in European Plant Variety Catalogue of a total of 17 hybrids of genetically modified maize (MON 810), resistant *Ostrinia nubilalis*. [www.EUobserver/europe.eu.int].

Great advances they have USA in research and production of GMOs, and the reluctance of Europe for this type of food they back less arguments and scientific interests, and especially economic, commercial. (Moroianu Zlatescu Irene, Octavian Popescu, 2008)

Durability opposition to GMOs in Europe can be understood if we consider that Western Europeans are convinced that tomorrow's agriculture through maintaining a peasantry who live to earth and environmental quality and taste of its products. Europe adopted in 2003 a policy abandoned the objective of increasing agricultural production and environmental protection considered. (Mircea Duțu, 2005).

Community legislation on biotechnology and products derived from biotechnology began in the early 1990s and is "dispersed" (especially in agriculture, food and the pharmaceutical products) because many directives lay down specific provisions on certain categories of products. (Duțu Mircea, 2003)

In 1990, two directives were adopted which is based on the use of genetically modified organisms controlled and deliberate release of GMOs. A third directive was adopted in 1998, after ten years of discussions at EU level. This Directive is based on Article 95 EC (EU) and also takes into

account the protection of inventions by national patent law of the Member States and complements these provisions with a common set of rules.

PRECAUTIONARY PRINCIPLE - A WAY OF APPROACHING THE ISSUE GMO RELEVANT

Since neither combatants nor their GMOs proponents not giving up their arguments, the battle between the two trends led to the development of a very rich jurisprudence based on the applicability of the precautionary principle in resolving new cases which were born from the use of current biotechnology.

The precautionary principle is a fundamental principle of environmental law that the absence of uncertainty should not prevent the adoption of measures to prevent the risk of producing a significant and irreversible damage to the environment. (Romițan Ciprian Raul, 2004).

Caution requires that measures to be taken, even if no damage is not looming in the near future. In terms of proof, the burden of carrying it reverses. She is now the one who claims that his work has or will have no impact until the accumulation of scientific data to prove that there is a cause and effect relationship between development activities and environmental degradation. (Mircea Duțu, 2010)

It is not always possible to know what can happen at a time using the environment and its resources nor the ways in which they may occur. It can be classified as "uncertainty principle". The law may require in this case:

- cautious progress until a trial can be considered "harmless";
- regular progress until they are found evidence of innocence;
- or no progress until it was done intensive research process was proposed and demonstrated his innocence. (Birnie, Boyle P., 2002)

Precautionary principle, which applies only in the case of uncertain risk, is the starting point of numerous lawsuits through which applicants seek remedy of damages which for some seem pure fiction, but the reality is emerging legal challenges amid new biotechnology development. Environmental law as a whole is a primary area of application of the precautionary principle, but his ambition to regulate global decisions in a situation of uncertainty, is countered by the existence of various pressure groups who can skillfully manage interests. (Teleagă Constantin, 2004).

Given the uncertainty and lack of experience and drive to the precautionary principle, it is proposed that the scope of the precautionary principle to be constituted by the collective damage the character of catastrophe, which would exclude personal injury. (Ewald, Francois, 2004).

AN ENVIRONMENTAL LAW PROBLEM UNDER DEVELOPED GENETICALLY MODIFIED ORGANISMS. FRANCE MODEL

Genetic modification of microorganism's activity paved the way explicit integration of the precautionary principle among legal sources. In this respect, the French Council of State has been notified of appeals directed against a decision of the Minister of Agriculture, who inscribed the Official Catalogue of Species 3 varieties of genetically modified corn, which makes the marketing of these seeds formality in France. (Van Lang Agathe,2002).

Before the Association Greenpeace France, with a request to postpone the execution of the judgment, gave administrative jurisdiction successful, while recognizing the precautionary principle invoked directly. In fact, invoking the precautionary principle in the version of Law in 1995, supplemented by other textual, appeared serious and justifies the annulment of the contested judgment.

Consider the consequences of enforcement difficult to repair public health and the environment, combined with the annulment serious way, managed to postpone the execution of a concession. (EC S., September 25, 1998, Association Greenpeace France, Agathe Van Lang, 2002). On the merits, the State Council postponed the ECJ (ECJ current) examination of two issues damaging the ban by the European Directive of 23 April 1990 on the deliberate release of GMOs, as long as the authorization procedure and marketing is very complex. (EC S., 11 December 1998, Catherine Roche, 2006).

In response, the ECJ (ECJ) said in a judgment of 21 March 2000 that France, which has notified authorization application to the European Courts favorable opinion, was in the case of legal powers over which the Commission ruled favorably on file. Existence of new information elements that allow suspect a risk to human health and the environment, relieve Member States to give their consent. It should be noted that the ECJ (ECJ) interprets this Directive with regard to GMOs by ensuring respect the precautionary principle, which manifests itself in the obligation to inform in case of new items and the risks associated with GMOs and faculty for all Member States, in this case, to limit or prohibit the sale to the territory. Finally, the State Council was forced to validate the marketing authorization of new elements. (EC S., November 22, 2000, Assoc. Greenpeace France, Agathe Van Lange, 2002).

Since then, GM has focused on litigation over the legality of municipal decisions banning GMO crops in full field commune's territories in order to avoid genetic pollution that harms the development of organic agriculture and biodiversity.

The judge limited the primary role in the deliberate release of GMOs, if applicable solution transposing segment imminent danger classified installations.

RESULTS AND DISCUSSIONS

GMO issue is still controversial and currently there is a genuine dispute between supporters and opponents of GMOs them. Lack of consensus surrounding the food safety of citizens, especially in European countries are reluctant to products containing genetically modified organisms. Insufficient information to citizens on GMOs will only confuse them and they are more difficult choice.

It is important for citizens to be informed and be given respect the rights resulting from their consumer. According to the Cartagena Protocol, the Parties shall promote and facilitate public awareness, education and participation in the transfer, handling and safe use of genetically modified organisms, the conservation and sustainable use of biological diversity, taking into account the risks human health. (Cartagena Protocol, 2000)

Nobody can say for sure that GMO foods are safe for human health. Recent studies have confirmed that genetic engineering produce unintended and unanticipated negative effects and that current risk assessments are inadequate for predicting adverse effects of GM foods on health. (Popescu Viorel, 2006)

CONCLUSIONS

Insufficient knowledge of the use in food of genetically modified plant varieties gave way to an approach based on the precautionary principle. But this time the precautionary approach, is displeasing big producers of genetically modified organisms. The interest of such a preventive policy is the European Union which has banned a long time genetic modification and import of such varieties. Very late, European policy has become more open to this segment, but in a very controlled and restricted. I still European states no recommendation to the widespread use of genetically modified organisms. Preferably, however, a different type of products, the organic (or "Bio"), considered much safer, natural, and therefore more suitable for long-term healthy living

Regarding environmental law genetically modified organisms, it is noteworthy that it is still at an early stage, because of the novelty that it has this problem. Judges in resolving pending cases began to appeal to the precautionary principle, but not often enough that they have formed a strong environmental law. Principle as a rule of conduct established considering

the probability and severity of ecological damage, before taking any decision. (Teodoroiu Maya Simona, 2009).

There is still a long way to go before everyone will understand that precaution, complete prevention can become even a lifestyle that they must be raised to the rank of general rules, universal, applicable in any situation, thus implicitly policy of protection, conservation and improvement of the environment. (Cobzaru Angelica, 2012).

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