

ENSURING RIGHT TO ORGANIC FOOD IN PUBLIC HEALTH SYSTEM

ZAPEWNIENIE PRAWA DO ŻYWNOŚCI ORGANICZNEJ W PUBLICZNYM SYSTEMIE OCHRONY ZDROWIA

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ABSTRACT

Introduction: Human health directly depends on safety and quality of food. In turn, quality and safety of food directly depend on its production conditions and methods. There are two main food production methods: traditional and organic. Organic food production is considered safer and more beneficial for human health.

Aim: to determine whether the organic food production method affects human health.

Materials and methods: international acts, data of international organizations and conclusions of scientists have been examined and used in the study. The article also summarizes information from scientific journals and monographs from a medical and legal point of view with scientific methods. This article is based on dialectical, comparative, analytic, synthetic and comprehensive research methods. The problems of effects of food production methods and conditions on human health have been analyzed within the framework of the system approach.

Conclusions: Food production methods and conditions ultimately affect the state and level of human health. The organic method of production activity has a positive effect on human health.

KEY WORDS: organic farming, environment, organic food, human health

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INTRODUCTION

Among other things [1], human health depends on food production conditions and methods. It is believed that people receive various chronic diseases and eventually their health deteriorates, quality of their life decreases due to consumption of food containing various dangerous compounds (nitrates, heavy metals, residues of pesticides, herbicides and other substances of chemical synthesis, etc.) used in traditional production methods. Introduction of the organic production method is a guarantee not only for health of a person consuming given products, but also for health of a person directly involved in food production. Moreover, with organic production methods, the environment is not subjected to damaging effects. But so far, organic production methods are rather an exception to the rules than a rule. The regions with the largest areas of organically managed agricultural land are Oceania (22.8 million hectares or 45 percent of the global organic farmland), Europe (12.7 million hectares or 25 percent of the global organic farmland) and Latin America (6.8 million hectares or 15 percent). The countries with the most organic agricultural land are Australia (22.7 million hectares), Argentina (3.1 million hectares) and the United States (2.0 million hectares) [2].

THE AIM

To determine whether the organic production method of food affects human health.

MATERIALS AND METHODS

The development of organic production is a political objective of the EU. The main European documents intended to regulate organic production include Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products, repealing Regulation (EEC) No 2092/91 and revising the basic requirements for organic production and labelling of organics; setting out the principles, aims and overarching rules of organic production and defining how organic products were to be labelled more clearly. The regulation set a new course for developing organic farming further, with the following aims: sustainable cultivation systems a variety of high-quality products, greater emphasis on environmental protection, more attention to biodiversity higher standards of animal protection, protecting consumer interests. In organic farming, closed cycles using internal resources and inputs are preferred to open cycles based on external resources. If the latter are used, they should be organic materials from other organic farms natural substances materials obtained naturally, or mineral fertilisers with low solubility. Exceptionally, however, synthetic resources and inputs may be permissible if there are no suitable alternatives. Such products, which must be scrutinised by the Commission and EU countries before authorisation, are listed in the annexes to the implementing regulation (Commission Regulation (EC) No. 889/2008) [3]. Art.

34 of the above-mentioned Regulation prescribes special rules for the marketing of products produced in third countries. Moreover, the detailed rules for organizing the procedure for imports of organic products from third countries were separately set out in Council Regulation (EC) No. 1235/2008 of 8 December 2008. In addition to this from 27 January 2009 Commission regulation (EC) № 152/2009 laying down methods of sampling and analysis for the official control of feed. Selection of specimens for official forage control to determine components, additives and undesirable substances, with the exception of residues of pesticides and microorganisms, is carried out in accordance with the methods set out in Annex I to this Regulation. Since the export-import of organic products always has the risk of finding residues of prohibited pesticide substances, in December 2015, the European Commission proclaimed more stringent Guidelines on additional official controls on organic products imported from Ukraine, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Uzbekistan and the Russian Federation. On November 29, 2016, the Commission revised but did not amend the Guidelines for Ukraine, the Russian Federation and Kazakhstan, which came into force on January 01, 2017.

Another common way to regulate carrying out organic production around the world is implementation of integrated Organic Farming Programmes, which should combine the entire system of the taken legal and organizational measures into a single strategy, arranging general condition for development of organic agriculture in the state. For example, in most European countries, similar programs were introduced in the 1990s: in Norway - in 1995, in Finland, the Netherlands and Sweden - in 1996, in France - in 1997, in the USA - in 1999 [4].

Many countries around the world have relevant legislation, for instance, in Poland there is current Act of Poland on Organic Farming of 25 June 2009, in Sweden - Act of Sweden on Organic Production Control of 23 May 2013, in Germany - Ecological Production Act Implementation Ordinance of 11 January 2010 and Eco Labelling Act of 10 December 2001, in Slovenia - Regulation on Organic Production and Processing of Agricultural Products and Foodstuffs of 13 July 2010, in Ukraine – the Law of Ukraine of 03 September 2013 No. 425 ‘On Production and Trade of Organic Agricultural Products and Raw Materials’, in Kazakhstan – the Law of the Republic of Kazakhstan of 27 November, 2015 No. 423-V ‘On Production of Organic Products’ and others.

And some countries include certain provisions on organic production into the legislation regarding environmentally friendly agriculture. The Czech Republic can be an example of the latter since the ecological agriculture is specifically distinguished and regulated by law - The Czech Act on Ecological Agriculture No. 242/200. We can also give examples of the Croatian Act on Ecological Production and Labeling of Eco-products No. 139/2010, the Law of the Republic of Azerbaijan of 13 June, 2008 No. 650 ‘On Environmentally Friendly Agriculture’ which regulates re-

lations concerning production, processing and trade of the environmentally friendly agricultural and food products ensuring health and safety of the public, land, water, plants and animals of the Republic of Azerbaijan. The notion of ‘environmentally friendly’ used in this law has the same meaning as ‘biological’, ‘organic’ and ‘natural’ concepts used in international law. There is a similar approach to the legislation on organic products in the Republic of Moldova, in particular, in the Law of the Republic of Moldova of 9 June, 2005 No. 115-XVI ‘On Environmental Agricultural Production’.

Despite the fact that in many countries, the demand for organic products is growing rapidly, there is a debate of long duration in scientific circles whether organic production methods lead to improvement of food quality and safety, as well as to improvement and stability of human health or not. The demand for organic products is largely driven by consumer perceptions that organic farming is more sustainable, which means that quality and safety of organic food are higher in comparison with food produced with traditional, intensive farming. One more argument for organic production is the need for solving environmental problems, ensuring biodiversity and public health. At the same time, it is important for agricultural producers to develop organic production to increase competitiveness in the world markets. But not as actively as the positive characteristics, all over the world, they also discuss negative features of organics: researches have shown that on average yields in organic farming are 20-25% lower than in traditional one. Agricultural producers need more land to grow a similar volume of crops, and additional land development for agriculture is a major factor in reducing a range of wildlife and negative climate changes.

Thus, the basis of human health is proper nutrition. Development and constant renewal of cells and tissues of the body is provided exactly by food which is a source of energy that is so necessary for the human body. So, there is indisputable connection of nutrition and human health.

REVIEW AND DISCUSSION

In scientific circles, there are three main views on the impact of organic products on human health. Such views are based on comparison of usefulness of crops, not only when the growing system is the sole difference, but also taking into account the variety of places of their cultivation, soil quality, irrigation methods, plant varieties, conditions of harvesting, storage methods, etc. [5, 6]. Let us examine them:

1. Organically grown products have a totally beneficial effect on human health.

Proponents of this approach place high standards of organic products quality, absence of harmful impurities, pathogens, parasites, allergenic components, genetically modified organisms and substances made on their basis among the benefits of using organic products for human health. Another advantage of organic products is maintaining nutritional properties, quality, safety and natural

composition while processing them, since only natural processing methods and traditional recipes, natural substances and packaging materials are used [7]. Organic food production is also safe for the environment, which ultimately has a positive effect on human health.

Moreover, results from a small number of human cohort studies indicate that there are positive associations between organic food consumption and reduced risk/incidence of certain acute diseases (e.g. pre-eclampsia, hypospadias) and obesity [8].

British scientists have carried out a series of studies which show emotional effects caused by organic food. In terms of emotions, organics is perceived as more healthy, since firstly, it is more expensive, and secondly, it is grown with minimal use of chemicals. Some non-organic products have been labelled as 'organic', and their taste has been perceived by respondents as 'organic' [9]. So, even positive emotional effect while eating organic food can be considered beneficial for human health.

However, using organic methods in agriculture is still considered to be the main arguments for health utility of organic products, as the main idea of organic food production is avoidance of all non-organic farming methods which means that the use of pesticides, artificial fertilizers, antibiotics, growth hormones and similar things is strictly forbidden. Instead, organic food producers use all natural farming methods such as crop rotation, composting, companion planting, stimulating biodiversity, etc. As a result, organic products pose no risk of pesticide residues nor presence of other potentially harmful chemicals. Although conventionally grown food is claimed to be safe, absence of all non-natural ingredients makes organic food without a doubt a healthier and safer choice because the long term effects of those "safe" doses of pesticides, preservatives and other chemicals remain unknown. They may be harmless but they may be also seriously harmful [10]. It has been shown that pesticide residues in food can promote cancer, Parkinson's disease and endocrine abnormalities [11,12].

Some studies have shown that the level of nutrition and content of vitamins (especially vitamin C), as well as some minerals and polyphenols - natural antioxidants that help strengthen the human immune system - are higher in crops grown with organic farming methods. The researchers argue that organic products have a higher level of phosphorus, zinc, magnesium, vitamin C, calcium, potassium, and iron. This difference is particularly noticeable in products of animal origin: meat, eggs, dairy products [13].

2. Organically grown products adversely affect human health.

There is growing popularity of the movement of opponents of organic production all over the world. They are rather skeptical about usefulness and safety of organic products. Thus, Alex Avery argues that the future belongs to biotechnologies which should be used instead of the current organic method of production activity. He emphasizes that many studies show that so-called organic products, firstly, contain more harmful substances, and secondly, it is their cultivation that causes great harm to the nature.

The author believes that the thing is that a rather limited amount of fertilizers, pesticides, herbicides etc. are used organic farming. Most of them are completely ineffective. For example, organic farms use copper sulfate rather actively as it is practically the only pesticide permissible in organic farming. But it is extremely toxic. It is three times more toxic than 'non-organic' captan or pyraclostrobin used at traditional farms [14]. Moreover, organic farms use highly toxic pyrethrin and sulfur, spraying plants with technical oils to fight insects. Since all these substances are less effective than modern chemicals, they are used in the organic farming more often than ordinary pesticides, herbicides and insecticides, and in large quantities [14].

3. Nutritional properties of products grown with organic methods do not differ from those of products grown in the traditional way.

Having conducted researches in the field of nutrition, some British scientists did not reveal any significant differences in the content of nutrients in organic food and products grown with traditional farming. In most comparative analyses, a significantly higher concentration of vitamins, minerals, or other useful trace elements in organics, as a rule, were not detected. Minor differences were registered only in three indices: organic food has a higher content of nitrogen, but less phosphorus and acidity [9]. That is, organic food does not differ from the usual products in terms of health benefits [15].

Consequently, the results of comparison of contents of organic and traditionally grown crops may be different, namely: they can show that there are more nutrients for human health in organic crops [16]. However, sometimes the results of studies are opposite [17], or the results of studies indicate that there is no particular difference between the two methods of cultivating agricultural products [18].

Some authors believe that other factors, namely a type of plants, year, place, environment, genotype selection, cultivating place, weather and time of harvesting, etc., are more important for a positive impact on human health than an organic or traditional way of cultivating agricultural products [19].

There are no definitive and universally recognized scientific research results to compare positive or negative effects of traditional or organic farming products on the human body. It is therefore currently not possible to quantify to what extent organic food consumption may affect human health.

CONCLUSION

It is difficult enough to become a proponent of one or another theory, given the complexity of conducting specific research as to an effect or absence of an effect of organic products on the human body and human health. In order to measure healthiness, one would need to have a group of humans eating only organic and another one eating only conventional food, and then after a while compare which group is healthier [20]. But taking into account all the effects, methods and conditions of production activity

aimed at organic food products in the aggregate, it can be concluded that the organic method of production activity has a positive impact on the state and level of human health.

REFERENCES

- Vitalii M. Pashkov, Olena M. Batyhina, Maryna V. Trotska.: Legal Restraints of Pesticide Effect on Human Organism and Environment under International Legislation; *Wiad Lek* 2017, 70, 2, cz. II, 366-371.
- Organic Farming Statistics. See at: <http://www.fibl.org/en/themes/organic-farming-statistics.html>.
- European Commission EU law on organic production: an overview. See at: https://ec.europa.eu/agriculture/organic/eu-policy/eu-legislation/brief-overview_en.
- Shcherbyna S. V. Normatyvno-pravovyy mekhanizm derzhavnoho rehulyuvannya vyrobnytstva ta obihu orhanichnykh produktiv kharchuvannya [Regulatory and Legal Mechanism of State Regulation of Production and Trade of Organic Food]. See at: http://ir.znau.edu.ua/bitstream/123456789/5485/1/Organik_2015_604-615.pdf.
- Huber M., Rembalkowska E., Srednicka D., Bugel S., van de Vijver L.P.L. Organic food and impact on human health: Assessing the status quo and prospects of research. *J. Life Sci.* 2011;58:103–109.
- Smith-Spangler C., Brandeau M.L., Hunter G., Clay Bavinger J., Pearson M., Echbach P.J., Sundaram V., Liu H., Schirmer P., Stave C., Olkin I., Bravata D.M. Are organic foods safer or healthier than conventional alternatives? A systematic review. *Annal. Int. Med.* 2012;157:348–366.
- Shcho take orhanichni produkty? Federatsiya orhanichnoho rukhu Ukrayiny [What are Organic Products? Federation of Organic Movement of Ukraine]. See at: <http://organic.com.ua/uk/homepage/2010-01-26-13-39-48>.
- Effects of organic food consumption on human health; the jury is still out! *Food Nutr Res* v.61(1); 2017. See at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5345585/>.
- American Journal of Clinical Nutrition The Times. See at: <http://www.time.com>.
- Organic Food and Its Effects On Health See at: <http://www.eostreorganics.co.uk/organic-food-and-its-effects-on-health.html>.
- McKinlay R., Plant J.A., Bell J.N.B., Voulvoulis N. Endocrine disrupting pesticides: Implications for risk assessment. *Environ. Int.* 2008;34:168–183.
- Landau-Ossondo M., Rabia N., Jos-Pelage J., Marquet L.M., Isidore Y., Saint-Aimé C., Martin M., Irigaray P., Belpomme D. Why pesticides could be a common cause of prostate and breast cancers in the French Carribean Island, Martinique. An overview on key mechanisms of pesticide—Induced cancer. *Biomed. Pharmacother.* 2009;63:383–395.
- Kolesnik Inna. Federatsiya orhanichnoho rukhu Ukrayiny Use, shcho potribno znaty pro orhanichni produkty [Federation of Organic Movement of Ukraine. Everything You Need to Know about Organic Products]. See at: <http://organic.ua/uk/lib/424-use-shho-potribno-znaty-pro-organichni-produkty>.
- Aleks Everi: Orhanichne hospodarstvo - nebezpechna ihrashka [Alex Avery: Organic Farming is a Dangerous Toy]. See at: <http://www.eco-live.com.ua/content/blogs/pravda-pro-organichni-produkti>.
- Tikhonova N., Mezhinska-Bruy O. Orhanichna produktsiya: perevahy i nedoliku [Organic products: advantages and disadvantages], *Scientific Works of NUFT*, 2014, Volume 20, Issue 5, pp. 98-104. See at: <http://dSPACE.nuft.edu.ua/jspui/bitstream/123456789/19579/1/12.pdf>.
- Vrcek I.V., Cepo D.V., Rasic D., Peraica M., Zuntar I., Bojic M., Mendas G., Medic-Saric M. A comparison of the nutritional value and food safety of organically and conventionally produced wheat flours. *Food Chem.* 2014;143:522–529.
- Ciolek A., Makarska E., Wesolowski M., Cierpiala R. Content of selected nutrients in wheat, barley and oat grain from organic and conventional farming. *J. Elementol.* 2012;17:181–189.
- Ordóñez-Santos L.E., Vázquez-Oderiz M.L., Romero-Rodríguez M.A. Micronutrient contents in organic and conventional tomatoes (*Solanum lycopersicum* L.) *Int. J. Food Sci. Technol.* 2011;46:1561–1568.
- Eva Johansson, Abrar Hussain, Ramune Kuktaite, Staffan C. Andersson, and Marie E. Olsson Contribution of Organically Grown Crops to Human Health See at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4025038/>.
- STO workshop The impact of organic food on human health Participants' booklet. European Parliamentary Research Service 18 November 2015 See at: <http://www.europarl.europa.eu/stoa/cms/home/events/workshops/organic>.

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