

ORIGINS AND EVOLUTION PROCESS OF ECOLOGICAL AGRICULTURE

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Abstract

The aim of this paper is to emphasize origins and development process of organic agriculture by summarizing the studies published to combat phytopathogenic agents which uses different plant extracts and essential oils. Worldwide, industrialized agriculture has undergone significant transformation, seeking ever more ways to act as environment friendly. Organic farming is an improved version of conventional agriculture that seeks to achieve a balance between the benefits to promote environmental and economic sustainability of both.

Keywords: organic farming, organic combat, phytopathogens.

1. INTRODUCTION

Agriculture in general is an important sector both in the country and abroad because of the contribution it has in the economy and social role (www.fonduriue.ro). Intensive farming has resulted in increase the number of pathogenic agents, increasing the rate and extent of their stroke, forcing farmers to use chemicals for the control, which substances have proved damaging to the environment (Rosslenbroich and Stuebler, 2000).

Of the various types of pollution, the chemical is dangerous, obvious and affects all parts of the biosphere. The degree of chemical compounds to the environment is represented by their toxicity, pollution source capacity, remaining in the environment and the possibilities for contamination.

It can be said that organic farming was an alternative to conventional agriculture, where farming and animal husbandry is carried on ecological principles. Organic farming is based primarily on their own resources, the preservation of soil organisms living on techniques for field work (Ciofu et al., 2009).

2. MATERIALS AND METHODS

This review was done after consulting various research studies. These studies have described the emergence and development of organic agriculture and ecological opportunities against pests of vegetables in general and especially tomatoes.

3. RESULTS AND DISCUSSION

EMERGENCE OF ORGANIC AGRICULTURE

From the years 1935-1940, especially Europe and Western states had a reluctant position of organic farming, but since 1980 it is recognized both market and government, national and international bodies. Organic farming has grown worldwide since 1960 and after 1973 is growing. This period was one of new ideas, protest movements, new thinking regarding the use of natural resources (Herrmann et Plakolin, 1991). William Albrecht gave a definition of ecological agriculture in 1970, "in which the ecological principle was introduced to the production system of organic agriculture (Coleman, 1989).

The largest non-governmental organization in the world for ecological agriculture IFOAM (International Federation of Organic Agriculture Movements) was founded in 1972 (Niggli and Lockeretz, 1996). This organization and those occurring later (Federation Nationale d'Agriculteurs Biologiques and Forschungsinstitut fuer Biologischen Landbau) plays an important role in standardization and promotion of organic products.

In Europe there are three categories that have left their mark in farming today, namely: Rudolf Steiner, laying the foundation of agriculture biodynamic, Sir A. Howard and organic farming and organic farming Rush Muller (Chilom, 2005).

According to FAO (Food and Agriculture Organisation of the United Nations), organic farming is practiced in almost all countries the number organically grown products is increasingly high, not only in major markets such as Europe, North America, but also in developing countries (Foster et Lampkin, 2000; FAO, 2002; Lin, 2003). After 1990, organic farming is entering a new phase of its development becomes so spectacular in 1997 organic farming in Western Europe accounts for 0.44% of the 1,995,435 ha and in 1999 reached 2.2% of 2,858,339 ha. Highlighted in this respect countries like Italy, Australia, Spain, UK, Germany, France. In 1990, Germany established the first fair, BioFach Fair "organic products, which has now become the largest fair of this kind (ITC International Trade Centre 1999 cited by (Mingli and Sauerborn, 2006).

ORGANIC FARMING IN ROMANIA

Now 15 years farming in our country was only present in the literature. In 1991 to the Buzau Research Station was foundation the first polygon a organic gardening (Brezeanu, 2011). In 1997, in Romania is established first association that promotes organic farming "Bioterra" and "Agroecology". But since 2000, farming became one of the most dynamic sectors of interest for products and organic production is growing (Table 1).

Table 1. The number of operators and organically grown surfaces
Source M.A.P.D.R

Year	2009	2010	2011	2012
The number of registered operators in organic farming	3228	3155	9703	15544
Area under organic farming	110014.4	148033.5	147581.55	174643.95

COMBATING ECOLOGICAL TOMATOES DISEASE

Tomatoes in Romania occupies a 9 in terms of main agricultural products made in 2009 in terms of value. They are distinguished by their excellent taste qualities by energy producing nutrients.

Pests are a major limiting factor in the production of tomatoes. Pests include pathogens that cause plant diseases and animal pests (nematodes, insects, mammals) that cause damage to crops (Mitrea

and Necula, 2004). Today, efforts are made worldwide to replace chemicals with alternatives that are safer and do not cause toxic effects on the environment. In this context, the present study carried out by different researchers on combating organic tomato diseases. In 1974, Bach shows that 99% of crop pests can be controlled natural ways to help animal pests, birds, spiders, parasitic wasps. Ogungbamila et al. (1997), Ulate-Rodriguez (1997), Zao et al. (2005) showed that certain compounds such as resveratrol, psoralen and bergapten seen as active principles in fig have a high bacterial activity and can be used as a means control phytopathogenic bacteria. These compounds have been used to combat diseases caused by *Pseudomonas syringae* pv. *tomato*, *Xanthomonas* sp., *Clavibacter* sp. In the study by Balestra et al. (2009), extracts of *Allium* and *Ficus carica* proved useful for controlling pathogens mentioned above. Tzortzakis (2007) showed that eucalyptus oil is a good choice for maintaining firmness and freshness of tomatoes and strawberries during storage and transport.

Peppermint oil has an efficiency of 83 %. Essential oils from plants can be successfully used against whitefly emissions, many of them having no harmful insecticides effects on the environment and human (Won-II et al., 2003).

To combat gray mold Emin et al. (2010) have used essential oils extracted from oregano, lavender and rosemary. Studies were conducted *in vitro* and *in vivo*. The study showed that the volatile oils, especially oregano, may have antifungal effect and can be used as treatment in combating phytopathogenic diseases.

In 2013, Al Rahman et al. conducted a study to combat the major diseases of tomato using plant extracts. They assess the ability of extracts from five plant species (*Lantana camara*, *Salvadora persica*, *Thymus vulgaris*, *Zingiber officinale* and *Ziziphus spina-christi*) to reduce the incidence of tomato diseases caused by different phytopathogens *in vitro*. Of the five extracts, 3 showed increased efficiency in combating tomato phytopathogens. *Thymus vulgaris* extract has been shown to be most effective in controlling the growth of mycelium to *Pythium* sp., *Rhizoctonia solani*, *Fusarium oxysporum*, *Lycopersici* sp. In our country, biological control of fungi, bacteria, viruses and insects specific horticultural crops can be made using plant extracts or natural products.

4. CONCLUSIONS

After studying literature have revealed adverse effects so that they generate chemical combat application in agriculture and alternative methods available for the development of sustainable agriculture. Because of the importance of economic power and thus tomatoes both pathogens action and ways to combat them have been extensively studied. The ability to control tomato diseases with herbal extracts or essential oils in the absence of viable alternatives and varieties resistant to diseases of interest increasingly higher.

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