Bulgarian Journal of Agricultural Science, 13 (2007), 619-621
National Centre for Agrarian Sciences

A Preliminarily Field Investigations on Several Compounds from Plant and Non – Organic Origin towards to *Plasmopara viticola*

D. GANCHEV
Agricultural University, Department of Agroecology, BG – 4000 Plovdiv, Bulgaria

Abstract

GANCHEV, D., 2007. A preliminarily field investigations on several compounds from plant and non – organic origin towards to *Plasmopara viticola. Bulg. J. Agric. Sci.,* 13: 619-621

During the summer of 2006 year, a in vivo field tests with grapes plants treated with active substances from plant and non – organic origin was conducted in Field Investigations Area of Agricultural University, town of Plovdiv, Bulgaria, in order, plants to be protected from grape downy mildew (*Plasmopara viticola)*. The results showed a potential effectiveness of the investigated compounds onto this plant pathogen and promising future field investigations with them and eventually formulation as plant protection environmentally friendly pesticides and their possible application in organic agriculture.

Key words: plant protection, naturally friendly pesticides, organic agriculture

Introduction

During the recent years the organic agriculture became more and more important as a healthy alternative for plant food production in worldwide significance. The major key for successful organic agriculture is the presence of appropriate and effective plant protection products. Exactly the adverse effect of conventional pesticides on humans, animals and environment as a whole is the main reason for increasing popularity of organic production. That's why, now is very important development of pesticides from natural origin, so called "naturally friendly pesticides" and which to be a worthy alternative to commercial pesticides.

The grape downy mildew is the most important phytopathogen for grapes in Bulgaria which in suitable abiotic for it condition can destroyed a whole production. From years the main fungicide against it is the Bordeaux mixture followed from dithiocarbamate pesticides. Even throw that the Bordeaux mixture is permitted in organic agriculture, it have a strong adverse effect onto soil micro flora and particularly on humans and animals. For that reason during the summer of 2006 year in

Filed Investigation Area of Agricultural University, town of Plovdiv – department Agroecology, was conducted a preliminarily field tests with some naturally friendly pesticides from plant and non – organic origin.

Materials and Methods

Used Biopesticides

Investigated plant substances was follows:

- PA – plant product on base of plant derivated undecilenates in concentrations: 0.05 and 0.1 %
- AD – product composted from non – organic salts with supposed ISR activity – concentration 0.25 %;
- PR – plant derivated product used in 0.04 % concentration;
- Bravo 500 – commercial fungicides on base chlorotalonil used in 0.25 % concentration as standard

Plants

The grape plants used in this test was from variety Shardone 3 years old. For every variant was selected randomly a four plants with one non-treated plant between them as buffer. Four plants were treated with waster and they represented the control.

Conducted Tests

A twelfths treatment from May 2006 to August 2006 between 7 – 10 days interval was conducted with investigated fungicides. As a typical contact pesticides the plants was careful sprayed to the point of overflow. In addition the presence of phytotoxic effects was observed. After the twelfth treatment, 30 leaves from each variant were observed for typical visual symptoms of *Plasmopara viticola* – chlorotic spots with white coating on down leaf surface. The spots were evaluated using 5 scale index of damage (index of Mc.Kyney).

Results and Discussion

Figure 1 shows the final results – it is obvious that the products PA – 0.1% and AD – 0.25 % have effectiveness towards to grape downy mildew which is equal to the standard (Bravo 500 – chlorotalonil). The fungicides PR – 0.04 % have also a good effectiveness and it is potential for future investigations in this area. There were no phytotoxic manifestations in all variants. The all of investigated compounds have a good effectiveness according to the grape downy mildew especially PA – 0.1

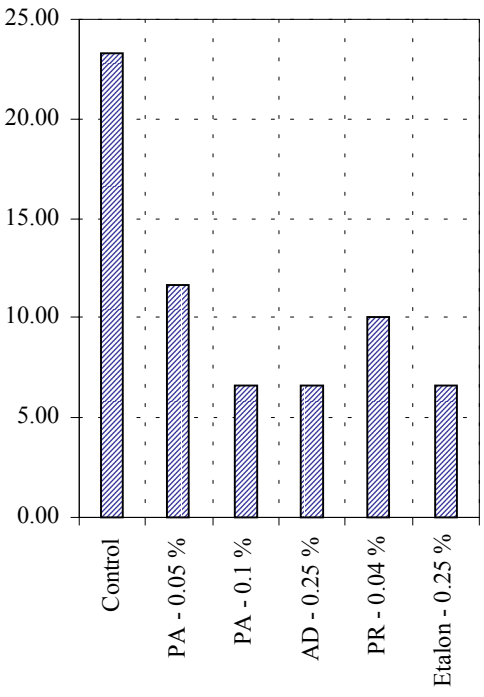

Fig. 1. Index of Damage (%) according to Plasmopara viticola

% and AD – 0.25 %. PR may also be used as a organic pesticides after future additional investigation about it's effectiveness – concentration and formulation.

Conclusions

For the first time, the effectiveness of products (PA, AD, and PR) is reported. These pesticides are completely new, environmentally friendly and applicable in organic agriculture. The future investigation of the products will be conducted in order to be confirmed the reported results.

References

Abbott, W. S., 1925. A method of computing the effectiveness of an insecticide. *Journal of Economic Enthomology*.**18:** 267-271.

Agrios, G. N., 2004. Plant Pathology. Fifth Edition, Published *by ELSEVIER Academic Press,* 633 pp. (Pl).

Cooke, B. M., 2006. The Epidemiology of Plant Diseases. Published *by Springer,* 576 pp. (Pl).

Schlosser E., 1996. Materials for alternative plant protection. *J. Environ. Sci. Health*. **B31, 3:** 391 – 397.

Spencer, D. M., 1981. The Downy Mildews. *Academic Press*, New York, 296 pp. (Pl).

Qasem, R. J., and H. A.Abublan, 1996. Fungicidal activity of some common weed extracts against different plant pathogenic fungi. *J. Phytopathology*, pp. 144 - 157.

Received June, 12, 2007; accepted August, 1, 2007.