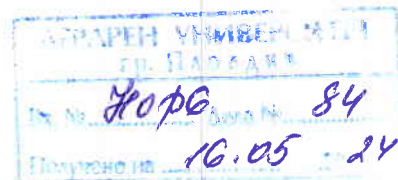


## STANDPOINT



on a dissertation work for obtaining the educational and scientific degree "doctor" in: field of higher education **6. Agricultural sciences and veterinary medicine** professional direction **6.2 Plant protection**, the scientific specialty **Plant protection**

**Author of the dissertation:** **ATANAS IVANOV IVANOV** doctoral student in independent training at the "Chemistry and Phytopharmacy" Department at the Agricultural University- Plovdiv.

**Topic of the dissertation:** Innovative methods for the control of economically important pests of winter oilseed rape

**Reviewer:** Assoc. Prof. Vinelina Panayotova Yankova-Mihaylova PhD, "Maritsa" Vegetable Crops Research Institute - Plovdiv, higher education field 6. *Agricultural sciences and veterinary medicine*, professional direction 6.2 *Plant Protection*, the scientific specialty *Plant Protection*

appointed as a member of the scientific jury by Order No. RD-16-459/01.04.2024 by the Rector of the Agricultural University-Plovdiv

### 1. Actuality of the problem.

Rape is an important oilseed crop. In recent years there has been a increasing interest in this crop. The favorable soil and climatic conditions in Bulgaria made this plant one of the main technical crops. Winter oilseed rape has a high nutritional value and can be used for green fodder, for oil production and for high protein meal. The economic importance of this crop is increasing worldwide as a result of the growing needs for vegetable oils and protein for both animals and humans. Rape is a crop that is subject to significant biotic stress caused by both pathogens and pests. Restrictions on the use of pesticides, threaten the profitability of oilseed rape production and its role as an important intermediate crop. Rape, or the so-called "yellow beauty", is an attractive crop for both pollinators and beneficial species, as well as many pests. The search for alternative means of control corresponding to the integrated pest management strategy, as well as the inclusion of appropriate agricultural practices contributing to the conservation of the beneficial entomofauna in this crop, is of extreme practical importance. In this regard, the topic of the presented dissertation is relevant.

### 2. Purpose, tasks, hypotheses and research methods.

The aim of the dissertation is to study innovative alternative means of controlling economically important pests of winter oilseed rape and agricultural practices corresponding to the integrated pest management strategy of this crop. Four tasks are indicated to achieve the set purpose. Standard entomological methods were used, which were described consistently and according to the tasks. Schemes and photographs of the conducted open field experiments are presented.

### 3. Visualization and presentation of the obtained results.

The dissertation is well structured. It includes all sections according to the requirements for the educational and scientific degree "doctor". The dissertation contains 108 pages, 43 tables, 17 figures and 44 photographs. The results obtained are good illustrated.

#### 4. Discussion of results and references.

The presented literature review, which covers 93 sources (2 in Cyrillic and 91 in Latin), shows the good awareness of the doctoral student on the subject. The Introduction (4 pages) and Literature Review (17 pages) sections cover the problem in detail. The obtained results are well discussed and linked to the values of the indicators obtained during the experimental work. Specific conclusions are formulated, which are summarized in 11 conclusions reflecting the fulfillment of the purpose and tasks of the dissertation.

#### 5. Dissertation contributions.

Based on the obtained results, 7 scientific contributions of an original nature and 3 contributions of an applied nature are presented.

##### Original scientific contributions

- For the first time in Bulgaria, the effect of products containing potassium salts of aliphatic carboxylic acids (fatty acids) is being tested against the pollen beetle *Brassicoglyphus aeneus* and the brassica pod midge *Dasineura brassicae*.
- Potassium salts of aliphatic carboxylic acids (fatty acids) with a carbon chain length of C14-C20 have been found to have good insecticidal activity against adults of pollen beetle and brassica pod midge and are an effective alternative to pyrethroids.
- Efficacy of potassium salts of aliphatic carboxylic acids (fatty acids) (C14-C20) against adults of pollen beetle and brassica pod midge is dose-dependent and could reach 100% at a dose of 5 l/ha, as the persistence lasts up to 15 days after treatment.
- For the first time in our country, it has been proven that the treatment with potassium salts of aliphatic carboxylic acids (fatty acids) (C14-C20) is completely safe for winter oilseed rape and does not negatively affect the yield of the crop, in some cases it increases it.
- For the first time in Bulgaria, the role of flowering plant species to increase ecosystem services, such as pollination and biological control, in the agroecosystem of winter oilseed rape is being studied.
- Phacelia (*Phacelia tanacetifolia*), borage (*Borago officinalis*), coriander (*Coriandrum sativum*), white mustard (*Sinapis alba*), fennel (*Anethum graveolens*), calendula (*Calendula officinalis*) and common sainfoin (*Onobrychis vicifolia*) have been found to be the plant species whose flowers attract pollinators and predators from the widest range of families.
- Three plant species phacelia (*Phacelia tanacetifolia*), borage (*Borago officinalis*) and coriander (*Coriandrum sativum*) can be recommended for sowing strips of flowering plant species in agroecosystem of winter oilseed rape.

##### Applied contributions

- Potassium salts of C14-C20 aliphatic carboxylic acids (fatty acids) have been shown to be an effective alternative to pyrethroids and a resistance management tool.
- Potassium salts of aliphatic carboxylic acids (fatty acids) can find practical application in the development of IPM schemes in the production of winter oilseed rape. Long persistence makes them suitable for application in critical phases of the crop.
- The results of the studies on the role of flowering plant species in oilseed rape can find practical application in the sowing of strips of such plants, supporting the beneficial entomofauna in the agroecosystem.

## 6. Critical notes and questions.

I have no critical notes.

## 7. Published articles and citations.

In connection with the topic of the dissertation, the doctoral student Atanas Ivanov has two co-authored publications in a refereed and indexed publication in world-renowned databases (30 points). Meets the minimum scientometric requirements.

Ivanov, A., A. Harizanova, 2022. The use of ammonium sulphate has an adjuvant effect on the productivity of oilseed rape (*Brassica napus* L.). Scientific Papers. Series A. Agronomy 65 (2), 231-238.

Ivanov, A., A. Harizanova. 2022. The effect of the carboxyl fatty acids as a biological control product against *Brassicoglyphus aeneus* F. on canola. Scientific Papers. Series A. Agronomy 65 (1), 379-385.

The presented author's summary of the dissertation reflects objectively the structure and content of the dissertation, as well as the achieved results.

## CONCLUSION:

Based on the various research methods learned and applied by the doctoral student, the correctly conducted experiments, the generalizations and conclusions made, I consider that the presented dissertation meets the requirements of the Law for the Development of Academic Staff in the Republic of Bulgaria, and the Rules of the Agricultural University-Plovdiv for its application, which gives me reason to evaluate it **POSITIVE**.

I would like to suggest to the honoured Scientific Jury to vote positively, and award **ATANAS IVANOV IVANOV**, a doctoral student of independent training at the "Chemistry and Phytopharmacy" Department at the Agricultural University - Plovdiv, the educational and scientific degree "**doctor**" in the scientific specialty **Plant Protection**.

Date: 14.05.2024  
Plovdiv

PREPARED THE STANDPOINT   
(Assoc. prof. Vinelina Yankova PhD)