ABSTRACT
OF THE DOCTORATE THESIS
CONTRIBUTIONS TO STUDY PARASITE AND SAPROPHYTE MYCOFLORA ON THE TOMATOES CULTIVATED IN THE FIELD AND PROTECTED SPACES UNDER CONDITIONS VASLUI COUNTY

This study wishes to be a link between the information from speciality literature consulted and own observations, realized under specific conditions in area Huşi, county Vaslui.

The researches undertaken for this purpose have followed the study of main mycotic pathogen agents which affect the tomato cultures in protected spaces and in the field and estabilished the eficiency of some measures of preventing and controlling these agents in the spirit of applied system if controlling the patogene agents.

A special importance has been shown to stredying parasite and saprophite mycromicetes from the soil that is to be cultivated with tomatoes.

The masters degree thesis with the title „Contributions to the study of the parasite and saprophite microflora on the tomatoes cultivated in the field and protected spaces under conditions in county Vaslui" is structured of seven chapters.

In the main part are chapters I, II and III, and in the special part with all the data from observations and experiments are chapters IV, V, VI, VII and the bibliography.

Chapter I „General considerations regarding the tomatoes culture", made up of 4 underchapters, presents the origin and spreading of tomatoes, the importance of the culture in the world and in our country.

Underchapter 1.3. presents an analysis of the dynamics of cultivated areas of obtained productions in the world, in Europe and our country, referring also to the difficult situation of agricultural production from this time with severe consequences for the perspective development of Romanian agriculture.

Chapter II, named „The study of researches regarding the main mycotic pathogen agents on the tomatoes on national and international level" presents aspects of knowledge picked up from sustained work of an important number of specialists, studies that constitued the object of numerous, valuable and useful works both theoretically and practically. Underchapter 1 wishes

to be a short but sincere homage bought to some personalities who marked the development of phytopathology with their activity materialized with a lot of scientific works like: Traian Săvulescu, Constantin Sandu-Ville, Olga Săvulescu, Alice Săvulescu, Ana Hulea, Vera Bontea, Eugen Docea and other.

Chapter III „The presentation of main mycotic pathogen agents on tomatoes" analyses the most frequent mycosis of tomatoes. The description of each pathogen materialized in a presentation of ecology and epidemiology, simptomatology, preventing and controlling. The presentation is accompanied by 56 pictures which sustain certain aspects from the text.

In chapter IV named „Natural background and pedoclimatic conditions in which the researches were made" are presented the climatic conditions of points of view from the study. This chapter describes the geographic area, the relief, hydrography, types of soil and their characteristics, flora and fauna that are specific for the area and the climatic considerations specific to the time that the researches werw made.

Chapter V named „The material and type of work" presents the purpose and objectives of these researches, the biologic material used, types of observations and experiences, the criteria of appreciation of the attack of pathogen agents, criteria of selection of products and products used in experiments.

In underchapter 5.2, „The biologic material used in the experiments" are presented the varieties and hybrids selected for the purpose of doing the researches in the field and in protected spaces.

In 5.3.1. „The settling of diagnosis of mycosis that produce affections to tomatoes" includes the reasons regarding the control of tomatoes cultures, the analyses of biologic material taken.

Taking into account the brief information from the speciality literature, a special attention has been shown during the year 2007 in determining the parasite and saprophite microflora of the soil in which is to be planted tomatoes in Huşi area.

Harvesting the soil tests has been made in different stages of development of the plants. For the soil tests harvested before planting the new tomatoes plants, the sowing of Petri dish has been made on 14.02.2007. At the appearance of micelions colonies, these were numbered and photographed on 19.02.2007. For the soil tests harvested after planting the tomatoes, the sowing of Petri dish has been made on 20.06.2007.

After the colonies appeared, mycromicetes have been photographed on 25.06.2007. With the last harvest and cutting down the entire culture, a new soil test has been taken and analized on 22.11.2007. A small number of mycromicetes has been isolated some of them being new, others being of those isolated before.

Underchapter 5.4. „Criteria and rate of appreciation of pathogen agents attack" presents the theoretical reasons that stood at the base of estimating the attack of pathogen agents. That is why we distinguish 2 main moments of infections induced by pathogen agents upon the culture as: attack and damage. In this work, pointing out the pathogen agents that affect the plant cover has been made calculating the degree of attack (GA%). In order to estimate the attack, it has been used a frame of attack levels presented by Phytosanitary and Quarantine Central Laboratory in 1995 and completed in 1997, transmitted to warning and Prognosis centre under the title „Instructions regarding the new system of evidence of harmful organisms and the evaluation of attack produced by these organisms upon cultivated plants".

From the point of view of the type of ordering the experiments regarding the identification of mycromicetes that affect the tomatoes culture, the behaviour of some varieties and hybrids of tomatoes at the attack of pathogen agents, as well as the efficiency of some fungicides used in controlling the agents, it has been chosen the method of blocks on one row both in the field and in protected spaces.

Underchapter 5.6. and 5.7. describe widely the technologies of cultivation applied during the researches.

Underchapter 5.8. „Criteria of selection of products used during researches" presents the principle observed during experiments for which „the possibility of choice exist, it always be chosen for the product that has the smallest impact upon the environment and presents the smallest risk for human health".

The last undeschapter of this section „Products of phytosanitary used in experiments", makes an enumeration of used products.

For obtaining a more detailed information regarding the efficiency of products, these have been selected from different groups: Anorganics, Ditiocarbamats and derivatives of tiuram, derivatives of carbamic acid and benzimidazoli, benzen and fenol derivatives, Dicarboximides, Mixtures.

Chapter VI named „The results of researches in preventing the apparition and controlling of mycotic pathogen agents of tomatoes" is the vast chapter of this work (over 50%) and includes the presentation and statistic interpretation of the obtained results after 3 years of experiments.

Underchapter 6.1. „The results of the studies upon the spectre of parasite and saprophite microflora from the soil destined to tomatoe cultures in protected spaces" presents in detail the way in which the soil tests examined in 2007, materialized in the laboratory research.

Due to analyse of soil tests gathered in February 2007, there have been determined species of *Penicillium*, *Aspergillus, Acremoniella, Cladosporium*, *Cylindrocarpon, Fusarium*, *Gliocladium*, *Trichoderma*, *Verticillium* and colonies of sterile mycelium. The analysis of soil tests from June 2007 proves the fact that the presence of high temperatures and of more developed plants have made that the spectre of mycromicetes from soil to alter both in quantity and in variability of isolated species. It has been noticed the presence of new species for Romania or quoted for the first time in the soil cultivate with tomatoes like: *Cladosporium lignicolum, Paecilomyces marquandii, Ceratocystis paradoxa, Verticillium lateritium, Scopulariopsis brevicaulis, Penicillium ochraceum.* After the analysis of soil tests from November 22 have been remarked mycromicetes species like: *Penicillium, Aspergillus, Cephalosporium, Pycnostysanus Rhizopus, Trichotecium.* The lamellas with determined micromycetes have been filed and included in „Micologic herbarium of Moldavia – C. Sandu-Ville"

Underchapter 6.2. „Research results regarding the study of attack of mycotic pathogens upon the seedlings of tomato produced in hotbed in the period 2006- 2008", presents the results regarding the dynamic of pathogen agents, apparition on untreated witness, the efficiency of treatments in controlling *Pythium de baryanum* Hesse şi *Rhizoctonia solani* Kühn., *Phytophthora parasitica* Dast., at Buzău 22 and Ace 55 varieties during 2006-2008.

Underchapter 6.3. „Research results regarding the study of attack of mycotic pathogens upon the seedlings of tomato produced in cold framed in the period 2006- 2008" presents the results regarding the dynamic of pathogen agents, apparition on untreated witness, the efficiency of treatments in controlling the pathogen *Pythium de baryanum* Hesse. and *Septoria lycopersici* Speg., at Rio Grande variety and Marissa hybrid during 2006-2008.

Underchapter 6.4. „The results of researches regarding the study of mycotic pathogen agents attack, upon tomatoes cultivated in protected spaces durihg 2006-2008" presents the data obtained regarding the dynamic of pathogen agents, apparition on untreated witness, studies regarding the behaviour of varieties and hybrids of tomatoes at the attack of pathogen agents, the efficiency of treatments in controlling the patogens *Alternaria dauci* (Kühn) Gr. et Sk. f. sp. *solani* (Ell. et Mart.) Neerg. and *Botrytis cinerea* Pers., at Rio Grande variety and Marissa hybrid during 2006-2008.

Underchapter 6.5. „The results of researches regarding the study of mycotic pathogen agents attack, upon tomatoes cultivated in the field during 2006-2008" presents regarding the dynamic of pathogen agents, apparition on untreated witness, studies regarding the behaviour of varieties of tomatoes at the attack of pathogen agents, the efficiency of treatments in controlling the phatogens *Septoria lycopersici* Speg. and *Phytophthora infestans* (Mont.) de Bary at Buzău 22 and Ace 55 varieties in during 2006-2008.

The thesis ends with chapter VII „Conclusions and recommendations", which contains both analyses and commentaries regarding the results of observations made during 2006-2008 and some recommendations that serve to preventing and controlling the mycotic pathogen agents of tomatoes.

The point 7.1.1. presents the conclusions regarding the studies upon the spectre of parasite and saprophite microflora from the soil destined to tomatoes culture in protected spaces. Out of 37 of isolated species, 16,2% represent new mycromicetes for our country (*Pycnostysanus resinae, Aspergillus pulvinus, Cladosporium lignicolum, Paecilomyces marquandii)* species in which the soil with tomatoes is the new host for the country *(Acremoniella atra, Aspergillus flavus, Aspergillus funiculosus, Cladosporium herbarum* and *Penicillium pallidum)* and species that were quoted for the first time in tomatoes soil *(Ceratocystis paradoxa, Cylindrocarpon candidum, Scopulariopsis brevicaulis, Verticillium lateritium).*

The conclusions regarding the study of attack of mycotic pathogen agents upon new tomatoe plants produced in hotbed and framed cold and upon tomatoes cultivated in protected spaces and in the field during 2006-2008, vise the dynamic of pathogen agents appearance, the efficiency of treatments, the behaviour of some varieties and hybrids of tomatoes at the attack of pathogen agents.

The recommendations vises the obligativity including in culture technology of tomatoes of modern elements of right phytoprotection for conditions in county Vaslui.

These ellements can lead to reducing as importance the economic damages caused by main pathogens that evoluate in tomatoe culture under high economic ecologic efficiency.

In order to illustrate some aspects presented in the text have been displayed within the thesis 92 pictures and 66 graphics. The data in this thesis obtained during the three years are syntethized in 145 tables.

The bibliography used includes both titles of refference works from specialty literature in the world and Romania, and titles of scientific works, specialty magazines, statistic year- books, documents taken over from the Internet.