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# The status of insect pests in stone fruit trees in Albania

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**Abstract**

During the recent years, with the development of fruit growing and fruit cultivation, the study of pests and their status in stone fruit trees in Albania is a crucial moment to realize an adequate strategy not only for the protection of plant health but also of integrated production. Except homoptera pests of fruit trees, during this study it was done also an inventoryof stone fruit trees affected by them, for example: *Pseudoaulacaspispentagona* (Targioni-Tozzeti) found in peach, nectarine, apricot, cherry, almond, plum; *Quadraspidiotusperniciosus* (Comstock) found in peaches and cherries; *Phorodonpruni* (Ferrari) found in plum; *Pterochloroidespersicae* (Cholodkovsky) found in peach and nectarine; *Aulacaspisrosae*(Bouche) found in the cherry and plum; *Sphaerolecaniumprunastri* (Boyer de Fonscolombe) found in plum, etc.Collection of insect pests was carried out in certain periods throughout the year, mainly during the vegetation period. Through this inventory, there were defined kinds of aphids that affect stone fruit trees. As aphids are vectors of different viral diseases, there were also determined the viral diseases that these insect pests spread on plants. Among the most prominent species are: green peach aphid (*Myzuspersicae*), which is a main vector of many viruses in fruit trees, is found each year in the form of a colony; Leaf-curling plum aphid (*Brachycaudushelichrysi*), which is a vector of the plum pox virus, etc. Collection and identification of entomophag species of homoptera pest of stone fruit trees is an important part of the research through this year. Further inventory of insect pests of stone fruit trees, in the future will help to implement in the most appropriate time of the measures to suppress them.

Keywords: insect pests, aphid, viral disease, stone fruit trees.

## 1. Introduction

Stone fruit trees are affected by a high number of pests and diseases. Some of stone fruit trees like peach and nectarine, hasa shorter life longevity compared with other fruit trees, chemical interventions have been and continues to be inappropriate, which is the main cause of the creation of resistant forms. The damage caused by insects affects not only the quantity but also the quality of fruit trees. Taking into consideration the large spread of fruit trees for their own nutritional values, economic importance as well as the sensitivity of these crops from pests, the inventory of species that host stone fruit trees would be a contribution to apply the oriented interventions, especially the chemical interventions.Types pests of insectaclass have been often object of studies and publications by different authors in Albania such as [1; 2; 3;4; 7;8; 10;11;12].

From the first studies, in 1959, as a result of the study of Californian aphid Q. Perniciosus, has occurred the export ban of early fruit, especially of the apples infested by this pest [5]. An early inventory study for aphids and their host plants is made in Korca district in the years 1968-1974, in which there were determined 56 aphid species, included in 34 genres, affecting 55 species of different plants. From this study there were defined types of aphids which are vectors of viral diseases and the plants affected by these diseases [8]. Another study was conducted on aphids in pomaceous fruit trees and their natural enemies in Albania in doctorate level is conducted and completed in 2002 [9].

Interest in the study of Homoptera has been increasing throughout the Palearctic, as phytosanitary condition of fruit trees in Europe is grave and deteriorating the last years. The introduction of new pathogens and the wider spread on the continent of those present, represents a threat to the production of fruits and especially the production of seedlings.New phytosanitary risks, already present in other

continents, can appear in the coming years in Europe (is enough to recall the case of Xylella spp. in olives).

In these conditions it is important to create institutional scientific networks to resist the needs of ever increasing production and phytosanitary difficult situations that threaten it. The cultivation of stone fruit trees and especially fruit production day after day is increasingly important because of suitable ecological conditions and geographical location of the Tirana region. Looking at the general trend for the cultivation of fruit trees, was undertaken this study. The aim of this study is the presentation of an inventory of entomofauna of the Tirana region, which are causing damage to the stone fruit trees together with the natural enemies, as a prerequisite for building programs and integrated management strategies.

## 2. Material and Methods

The study is being conducted in stone fruit tree orchards of the Tirana region and adjacent areas from 2015, 2016, and continuing in 2017 in order to determine harmful homoptera species and their natural enemies. Plant samples were transferred to plastic bags and brought to the laboratory. Some of the collected aphids were preserved in 70% ethanol for subsequent identification. Insect pests newly collected or newly dead are placed in a test tube with internal diameter of at least 7 mm, length 40 mm and round base with preservatives alcohol content 90-96 %. Collecting and preserving techniques used were based mainly on the method of HilleRisLambers (1950) [6]. Pieces of plants with aphid colonies were gently cut with scissors and placed in plastic cages to obtain parasitoid and predator adults in the laboratory. The emerging parasitoids were transferred with a fine brush into Eppendorf tubes containing 70% ethanol. Collected predator species were killed by ethyl acetate in a killing bottle. Collection of other insect pests is conducted through the use of various traps, namely: the Stainer hopper for shaking, entomological nets, yellow traps and the shaking method (knock-down).

## 3. Results and Discussion

In the study carried out during the year 2015, in the Tirana region, there were found these types of aphids: *Myzuspersicae*(Sulzer), *Myzus variant* (Davidson), *Brachycaudusschwartzi*(Börner), *Brachycauduspersicae*(Passerini), *Brachycaudushelichrysi*(Kaltenbach), *Hyalopteruspruni*(Geoffroy), *Hyalopterus amygdale* (Blanchard), *Phorodonpruni*(Ferrari), *Myzuscerasi*(Fabricius), *Pterochloroidespersicae*(Cholodkovsky).

**List no. 1. Host plants of aphids in the area of Tirana during 2015**

- *Myzuspersicae* (Sulzer) is found in peach, apricot, cherry and plum;
- *Myzusvarians* (Davidson) is found in peach;
- *Brachycaudusschwartzi* (Börner) is found in peach, nectarine and plum;
- *Hyalopteruspruni* (Geoffroy) is found in plum;
- *Myzuscerasi* (Fabricius) is found in cherry;
- *Brachycaudushelichrysi* (Kaltenbach) is found in plum;
- *Brachycauduspersicae* (Passerini) is found in peach, apricot, cherry and plum;
- *Hyalopterusamygdali* (Blanchard) is found in peach;
- *Phorodonpruni* (Ferrari) is found in plum;
- *Pterochloroidespersicae* (Cholodkovsky) is found in peach, apricot, cherry and plum;

All the above mentioned species are found in four areas of study respectively: Laknas, Prezë, Bërzhitë and Ndroq.

**List No. 2. The prevalence and abundance of Homoptera pests according to crops in the Tirana region during 2016**

- *Aphis gossypii* (Glover) is found in peach;
- *Myzuspersicae*(Sulzer) is found in peach, nectarine, almond and plum;

- *Parlatoriaoleae* (Colvée) is found in peach and cherry;
- *Pseudoaulacaspispentagona*(Targioni-Tozzeti) is found in peach, nectarine, apricot, cherry, almond and plum;
- *Quadraspidiotusperniciosus* (Comstock) is found in peach, nectarine, apricot, cherry, almond and plum;
- *Brachycauduspersicae*(Sulzer) is found in peach;
- *Hyalopteruspruni* (Geoffroy) is found in plum;
- *Myzuscerasi* (F.) is found in cherry;
- *Phorodonpruni* (Ferrari) is found in plum;
- *Pterochloroidespersicae* (Cholodkovsky) is found in peach and nectarine;
- *Aulacaspisrosae* (Bouche) is found in cherry and plum;
- *Sphaerolecaniumprunastri*(Boyer de Fonscolombe) is found in plum;

**5. Conclusions**

The types of insects found in stone fruit crops during the current research, shows that in our orchards there are almost the same species that are found throughout the Balkan region and the European region such as *Myzuspersicae* (Sulzer), *Myzusvarians* (Davidson), *Brachycaudusschwartzi* (Börner), *Hyalopteruspruni* (Geoffroy), *Myzuscerasi* (Fabricius), *Brachycaudushelichrysi* (Kaltenbach), *Brachycauduspersicae* (Passerini), *Hyalopterusamygdali* (Blanchard), *Phorodonpruni* (Ferrari), *Pterochloroidespersicae* (Cholodkovsky), *Aphis gossypii* (Glover), *Parlatoriaoleae* (Colvée), *Pseudoaulacaspispentagona*(Targioni-Tozzeti), *Quadraspidiotusperniciosus* (Comstock), *Hyalopteruspruni*(Geoffroy), *Phorodonpruni* (Ferrari), *Aulacaspisrosae* (Bouche), *Sphaerolecaniumprunastri*(Boyer de Fonscolombe). This diversity expresses the great importance of in-depth studies not only in continuing for the useful entomofauna but also for the integrated management programs. This list draws attention also for the production of certified seedlings knowing that a part of these insects are vectors of Viruses.We regard this study as only a preliminary step in the description of the aphid-natural enemy complex of Tirana region.

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