

HEALTH STATUS OF THE OLIVE TREE (*OLEA EUROPAEA* L) IN THE MOUNTAINS OF WESTERN TRARAS (TLEMEN – ALGERIA)

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ABSTRACT

Its location in the Western and Northern Algeria with a Mediterranean climate and limestone end olive remained as the main fruit species grown in the mountains of Western Traras recent years. The development and progression of disease problems (pests, diseases) the Olive drew attention and caused concern among some farmers. Investigations and surveys in the area of Bab El Assa and Marsa Ben M'hidi led to an initial list of insects and fungi that can disturb this precious species in these two regions. However in this article, we will limit to present the main pests and a major fungal disease knows this species. The purpose of this study is twofold, first, to describe and analyze the symptoms and secondly, to highlight the role of pest problems in the decline of the olive tree, and on its production in order to establish the health check of our groves, knowing synecological no research had been conducted in this area in the region.

KEYWORDS: Olivier, Phytosanitary Problems, Region Traras Westerners

INTRODUCTION

The olive tree is one of the few trees that occupy an important place in the Mediterranean fruit growing. Currently, it is considered a major component of the agricultural economy in some countries in the region and especially in our country.

In Algeria, the olive tree its scientific name *Olea europaea* L, occupies an area of 165,000 ha, or 36 % of the area before the date palm tree (20, 9%), citrus fruits (8.4%) and the fig tree (6.5%), (BACHOUCHE & KELLOUCHE, 2012). Algeria is among the countries with modest production with a production of 4,100,020 Qx olive oil and olive 587,980 Qx table (ANONYME, 2006 (a)). In our country the Algerian olive grove olive replied on 03 major areas: **1** - The area of the western region, accounting for 31 400 hectares divided between 5 wilaya are Tlemcen, Ain Temouchent, Mascara, Sidi Bel Abbes and Relizane. **2** -The area of the Central region of the country, by far the largest, covers an area of 110,200 hectares distributed among the wilaya of Ain Defla, Blida, Boumerdes, Tizi -Ouzou, Bejaia and Bouira. **3** -The area of the eastern region is represented by 49 900 hectares of olive groves, representative and divided between the provinces of Jijel, Skikda, Mila and Guelma. The Tlemcen received during the current five-year period and under the national program for the reforestation of about one million hectares of olive trees across the country, a program of planting trees on an area of 20,000 hectares. After planting 1,200 hectares of olive trees during the first year of the program's launch in 2010, the Directorate of Agricultural Services intends to continue this operation by planting annually the equivalent of 4,700 hectares, according to the same source. Olive groves in the region Traras Westerners with an area of 209.50 ha spread over five communes: Bab El Assa (25 ha), Souani (120 ha), Souk Tleta (11.5 ha), Marsa Ben M'hidi (30ha) and M'Sirda Fouaga (23ha). These groves are characterized mainly by difficult topographical conditions (soil, hilly) and a rainfall of 350-450 mm. The olive crop is of great socio- economic importance in the region. Olive production is limited by several problems. These problems can be entomological origin (pests), fungal (mushrooms) or viral (disease)

leading to crop losses and even death of the tree from which the notion of decay. Phytosanitary problems olive currently one of the major constraints to the development of culture in the Mediterranean, (EL HADRAMI, 2001). This study aims primarily inventory and description of the problems that knows the olive in the mountains of Western Traras. The study of phytosanitary problems though olive pests, diseases, disabilities offers a great ecological interest. It aims to characterize strategies for prevention and fight against pests. It is for this reason that we have dealt with this theme in olive groves of this region, no study has been devoted in this direction before.

MATERIALS AND METHODS

Presentation of the study area (Figure 1) The region is located at the western end of Algeria, affects both the Mediterranean Sea and the Kingdom of Morocco with the following limits: In the north the Mediterranean Sea, to the east the town of Souahlia, south the common Maghnia and west, the Algerian- Moroccan. The region is characterized by a mediterranean climate with warm winter semi arid with average annual rainfall of 300 mm and an average temperature of 18 ° C. We also find that the region has undergone a remarkable bioclimatic change from the ancient period. Precipitation decreased by 10% and temperatures have increased. This change has already reported by many authors (BENABADJI & BOUAZZA, 2000; QUEZEL, 2000) for the western region has significantly increased the "arid" dominant character of this region. The main component sets are the bedrock carbonate formations, non carbonate formations, volcanic formations and Quaternary formations (MEDJAHDI, 2001; NICHANE, 2011).

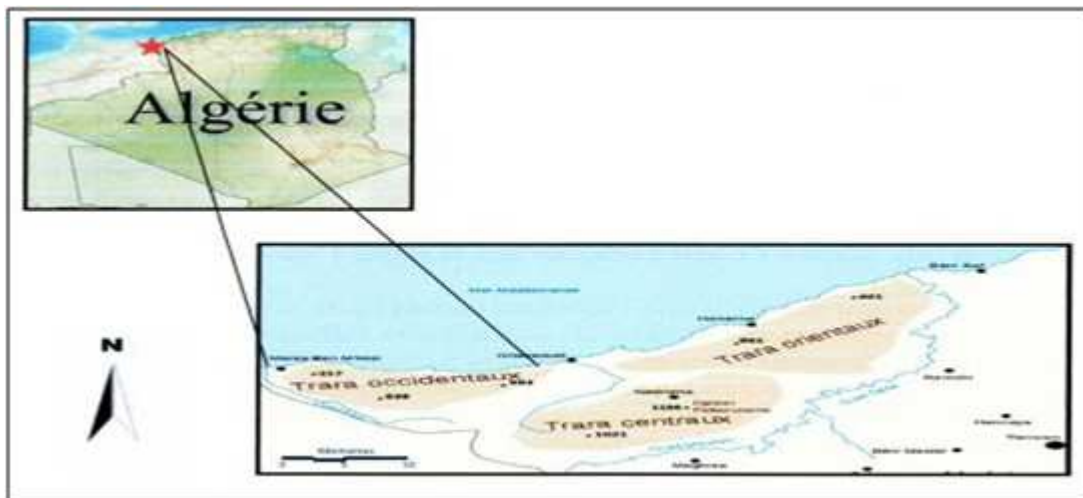


Figure 1: Location of the Study Area (ANONYME, 2006 (b)), as Amended

To make this work, five farms (five municipalities) were surveyed in 2011. **Sampling methods** Since acted to identify and inventory for the first time the problem of the olive tree at the region Traras Westerners, the sampling was done randomly at the olive groves of the five municipalities concerned, taking each municipality an olive grove or mass is isolated. For this study, we used two steps: **1 - On the ground** Outputs on land held twice a month from February 2011 to december 2011. Colored traps, Japanese umbrella, peeling, removal of branches, visual observations, photography using a digital camera are used. **2 - In the laboratory** Once the various samples are transported to the laboratory in glass bottles is plastic bags. The insects are killed cyanide to ethyl or carbon tetrachloride (MARTIN, 1983). Species identification is based on consultation with various guides and documents (GRASSE and al., 1970), (GEDIT, 1984) (BALACHOWSKY, 1962) (MATHYS, 1988) (ZAHRADNIK, 1984) (LAURENT, 2003), (DUHEM, 2003) (HAHN, 2002).

RESULTS AND DISCUSSIONS

The results are shown in Table 1

Table 1: Phytosanitary Problems in the olive groves of the western mountains Traras (2011)

Phytosanitary problems	Nature	Bab El Assa	Souani	Souk Tleta	Marsa Ben M'hidi	M'Sirda Fouaga
<i>Bactrocera oleae</i>	Pests	+	+	+	+	+
<i>Saissetia oleae</i>		+	-	+	-	-
<i>Prays oleae</i>		-	-	-	+	+
<i>Hylesinus oleiperda</i>		+	-	-	-	+
<i>Phloetribus scarabeiodes</i>		-	+	+	-	-
<i>Euphyllura olivina</i>		+	-	+	+	+
<i>Nysius cynoides</i>		+	-	-	-	-
Sooty mold	Diseases	+	-	+	+	+
Cyclonium		+	-	-	-	-
Verticilliose		+	+	-	+	-
Browning of leaves	Deficiencies	+	-	-	-	-
Yellowing of leaves		+	-	+	+	-

+ : Presence
 - : Absence

The findings in the field lead us to conclude that the phytosanitary problems olive gathered into three categories: **(Figure 2)** 1 - Attacks due to insect pests (58%) | 2 - The fungus diseases (25%) | 3 - Deficiencies due to deficiencies of minerals (17%)

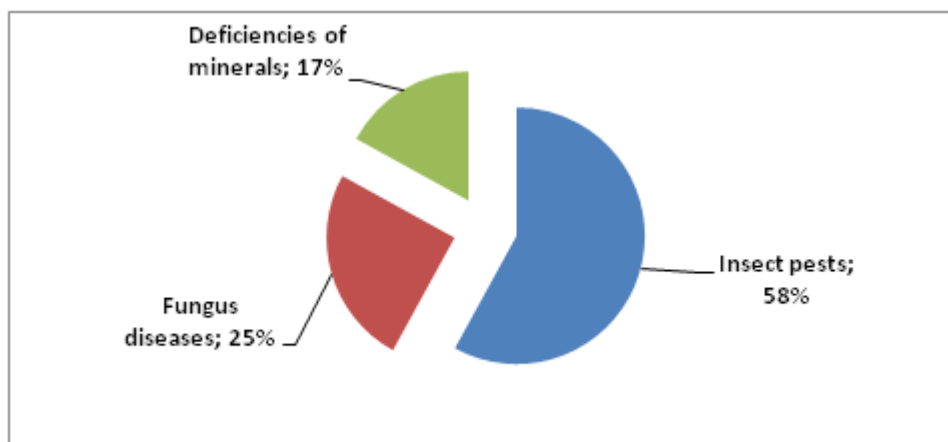


Figure 2: Distribution of Phytosanitary Problems in the Study Area

Table 1 shows the distribution of these problems in the olive groves of the five municipalities. *Bactrocera oleae* is captured in all the olive groves of the study area, *Diptera* present from June until the end of October, the damage result in the deterioration of the flesh of the olive caused by the larvae, more olives with fall prematurely. For *Saissetia oleae* she frequents groves Bab El Assa and Souk Tleta, while catches are zero in other groves. This mealy bug can weaken trees if larvae are numerous, it produces honeydew that promotes the growth of sooty mold is a fungus that appears as a black dust on the leaves and branches of the olive tree. *Prays oleae* is trapped only at the town of Marsa Ben M'hidi and M'Sirda Fouaga for other groves is absent. It is a pest that lives year-round in the olive, the damage of this insect result in fruit drop achieved. *Hylesinus oleiperda* is found in two groves, the Bab El Assa and M'Sirda Fouaga. *Phloetribus scarabeiodes* frequents groves Souani and Souk Tleta; these insects are considered pests because they attack the weak wood by tunneling. So *Euphyllura olivina* is captured in all except olive groves Souani. It is a sucking insect biting, it causes the fall of clusters and young fruits by depressive effect on fruit set. On *Nysius cynoides* this is a new species captured on some

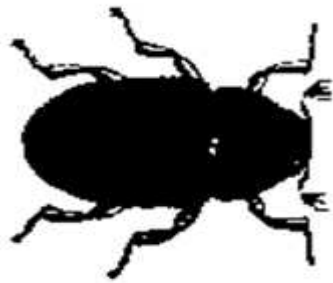
isolated Bab El Assa trees. The main symptoms of this sucking insect are in chronological order, bites on the leaves, drying and a drop in the leaves, in the end a total decline of the tree (Figure 3)



Prays oleae



Bactrocera oleae



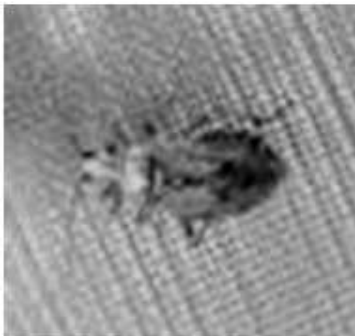
Phloeotribus Scarabeoides



Euphyllura olivina



Saissetia oleae



Nysius cynoides



Hylesinus oleiperda



Figure 3: Photographs the Insect Pests and our Damage

In this study, we also recessions a sizeable mycoflora associated with the olive tree, and contribute directly or indirectly to the disruption of olive groves. These are: *Sooty mold or black olive*; observed in some subjects olive groves, a foodborne illness proliferation of several species of microscopic fungi. It forms a thin black film that first settled on the leaves and all the branches of the tree. To grow, these fungi need a substrate on which they feed. It is for sooty mold on honeydew secreted by biting insects that suck the sap of the tree (the scales). *The Cyclonium* observed in some isolated Bab El Assa trees is a colony of fungus that settles on the leaves during spring and autumn when the atmosphere is soft and moist. He began to attack the branches and invades the tree. *Verticillium wilt*, the fungus responsible for the disease is in the soil and enters the tree through the roots and progresses within sap. It causes lesions in the vascular system of the olive tree which causes dryness certain subjects' groves Bab El Assa, Souani and Marsa Ben M'hidi (**Figure 4**)



Figure 4: Photographs Diseases Observed on the Olive of the Study Area

We also save the poor soil mineral elements plays a role in the physiological disturbance in the tree where we observe outings browning and yellowing of certain subjects in Bab El Assa, Souk Tleta and Marsa Ben M ' hidi expressed by phosphorus deficiency or iron.



Browning of Leaves

Yellowing of leaves

Figure 5: Photographs of the deficiencies on the olive of the study area

If we take the distribution of these five common problems as we find that the town of Bab El Assa ranks first with 33%, common Marsa Ben M'hidi and M'Sirda Fouaga come in second place with 20% the third place is occupied by the municipality of Souani with 17% and 10% include the town of Souk Tleta (**Figure 6**)

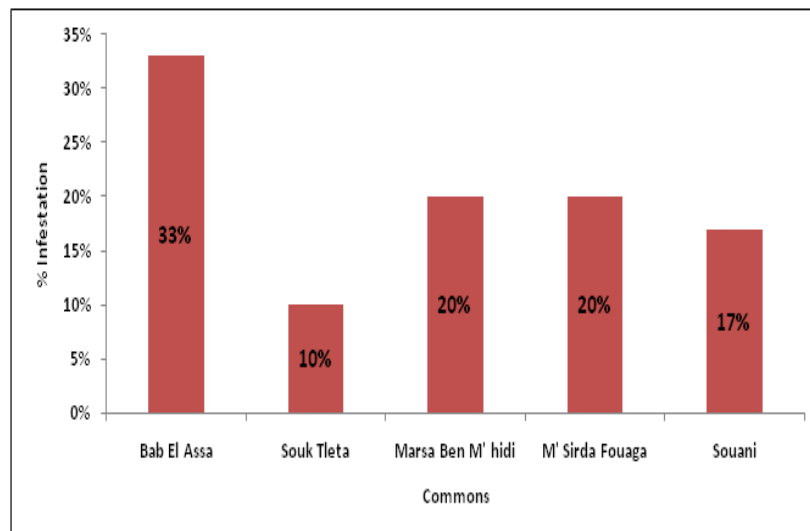


Figure 6: Percentage of Phytosanitary Problems Identified by Olive Groves

This uneven distribution of these problems can be expressed and probably climatic conditions, soil and even the phenology of the host plant.

CONCLUSIONS

At the end of this study, it is necessary all the socioeconomic interest of the olive tree in the region Traras Westerners. This is a contribution to the study of the main phytosanitary problems observed in the year 2011 in the olive groves of this region. From the results, we find that these disturbances are grouped into three categories: Disturbances due to insects, it is the case of *Bactrocera oleae*, *Saissetia oleae*, *Prays oleae*, *Hylesinus oleiperda*, *Phloeotribus scarabeoides*, *Euphyllura olivina* and *Nysius cynoides*. These insects' pests represent 58% of the attack rate. Disturbances due to disease, it is the case of Sooty mold, the *Cycloconium* and *Verticillium*. These diseases account for 25 % of the rate of attack. Disturbances due to deficiencies and mineral deficiencies, they represent 17% of the rate of attacks, they are mainly iron deficiency and phosphorus. The results also showed that some pest is present during some period, while some another frequent throughout the year, it is the case of olive psyllid *Euphyllura olivina*. In the light of these results and following remarks we recorded our various court surveys, we can consider that our study as any other research can be that

participatory and requires absolutely complementarity with other studies to establish a policy against any disturbances that may affect this valuable species in the future.

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