Contribution to the Study of The Pedofauna In Southern Algeria (Djelfa Forest, Algeria)

Lynda Zaid Bouchou[1*], Zineeddine Chekired[2], Faiza Marniche[3]

[1]*Faculty of Natural and Life Sciences, Benyoucef Benkhedda University, Algiers, 16000 Algeria.*

[2]*National Forest Research Institute Bainem/ Algiers 16000 Algeria.*

[3]*National Veterinary School of Algiers 16000 Algeria.*

Abstracts : This study compares the soil fauna populations of two Aleppo pine sites in the semi-arid bioclimatic zone. One is located at Moudjbara, and the other at Senalba Chergui in the steppe of the Wilaya of Djelfa. Analysis of the soil sample inventories revealed a total of 479 specimens belonging to 9 classes, 16 orders, 38 families and 41 species. The Moudjbara fauna remains the best represented in terms of abundance, with a rate of 53% of the total number, as well as in terms of richness for all taxa combined, 23 families and 26 species compared with 15 for each of the above-mentioned ranks. On the basis of the data collected, it is clear that the Moudjbara forest seems to offer ecological conditions that are more conducive to the establishment of a more diversified community of soil fauna than the Sénalba Chergui forest. The Sénalba Chergui forest is the least rich in species and the least abundant in terms of numbers of individuals. The equitability values for the two biotopes surveyed tend to approach the value of 1, which implies that all the species are more or less equally distributed between them.

Keywords: Pedofauna, Moudjbara, Senalba Chergui, Aleppo pine.

1. INTRODUCTION

Forest ecosystems are subject to perpetual change, which influences plant composition, habitat structure and associated fauna. Organisms existing in the same space influence each other. These interactions produce effects that drive forest development, modifying the abundance, vitality and behaviour of species more or less quickly, but continuously [1].

Soil is a dynamic and complex system responsible for numerous natural functions in direct interaction with the other compartments of the ecosphere [2]. The profound modification of soils leads to a major, though still poorly understood, reorganisation of soil-dependent communities (edaphon), which are themselves partly responsible for changes in soil structure and the availability of nutrients [3].

Understanding and predicting the effect of invertebrates on soil functions and their applications in soil-plant systems is crucial for supporting innovative practices that promote the biological functioning of soils [4]. Most species are found in the first few centimetres of soil, where concentrations of organic matter and roots are highest. By identifying, counting and characterising the diversity of living organisms in the soil, it is possible to define relevant indicators that provide information on the biological quality of soils and their environment [5]. The distribution and diversity of soil fauna are strongly influenced by environmental ecological factors such as soil composition, climate, surrounding vegetation and even human activities. These factors play a crucial role in the creation of specific ecosystems and in the regulation of soil organism populations.

Among the work carried out on the inventory of the various taxa of soil invertebrates in Algeria, are those of [6] on Arthropodofauna inventoried by the barber pot technique in an Aleppo pine reforestation at Sehary guebly (Djelfa), de [7] on the diversity of the pedofauna (mesofauna-macrofauna) of the Dhaia region (Chréa National Park), [8] on the contribution to the study of the entomofauna of some resinous species of the Western Traras region (Tlemcen - Algeria), 9] on the composition of beetle and spider populations in reforested and steppe areas in Djelfa, [10] on the study of the spatio-temporal distribution of Coleoptera insects in the Bainem arboretum (Algiers), 11] on the study of the inventory of the soil fauna of steppe formations in the Oued Sbar region (Djelfa), [12] on the bio-ecological aspects in different environments of two families of soil mites (Galumnidae and Scheloribatidae).

Drawing up fauna inventories in different regions is of crucial importance for research, as these lists provide an invaluable contribution to our understanding of species and their geographical distribution. For this reason, our work was carried out in the steppe area of Djelfa, located at the gateway to the Great Sahara, where two distinct types of forest formation - reforestation and natural forest - will be compared.

2. MATERIALS AND METHODS

2.1. Study Site

The sites to be planted belong to the semi-arid bioclimatic zone, and the choice fell on plots of land planted with Pinus halepensis, with a homogeneous physiognomy, easy access and no obstacles. The reforestation of Moudjebara is part of the Green Dam project (34° 38' N.; 3° 19' E.). The total surface area of the site is 13,000 ha. This reforestation is located at an altitude of 1193 m. Sénalba Chergui has a flat topography, facing south (34°39'6''N 3°10'51.5''E) and an altitude of 1316 m. The vegetation is sparse, with Aleppo pine stands relatively far apart.

2.2. Soil Sampling

Spring 2021, is the period traditionally studied, as it offers favourable conditions for a large number of soil animals to be counted (high ambient temperatures, optimum soil moisture, relatively stable soil climate). At each study station, the sampling points were arranged systematically over a rectangular area measuring 12m². The sampling grid consisted of a regular square mesh with edges spaced at 1 metre intervals along the four cardinal directions. Using quadrats measuring 30x30x10 cm is the most practical method, as it allows sampling to be optimised. Following the line formed on the ground, the edges are accentuated using the soil knife to maintain the same dimensions of the square vertically to the ground. The soil was then dug to a depth of around 10 cm using shovels. In all, 24 soil samples measuring 30x30x10 cm were taken in the field and then sent to the Institut National de la Recherche Forestière.

2.3. Collection, Extraction and Determination Of Biological Material

The endogenous fauna is extracted using the BERLESE-TULLGREN device, a selective method based on the negative phototactic properties of the individuals [13]. Soil samples are placed in funnels lined with 2mm mesh, which open into glass or plastic collecting flasks. These are covered with aluminium foil to simulate the darkness of the fauna's natural environment. Placed under a light source, the light and desiccation drive the animals through the net and into the bottles containing 70% alcohol.

2.4. Sorting, Counting and Determining the Specimens Collected

After 8 days of extraction using the BERLESE device, the contents of each collection container are transferred to a glass vial bearing a label indicating the name of the station and the number of the sample. The vials are then transported to the zoology laboratory at the fac centrale, where the specimens collected are examined, identified and counted using a binocular magnifying glass and identification keys.

2.5. Use of the Data Collected

According to [14], an inventory must be supplemented by the quantitative and qualitative assessments needed to make use of the data collected. This makes it possible to summarise the richness of the data obtained and to facilitate the identification of potentially existing differences. The ecological indices of composition (S) and structure (Ar; H'; E) were used to evaluate the invertebrate inventories carried out.

3. RESULT AND DISCUSSION

3.1. Biocenotic Study

3.1.1. Overall Taxonomic Analysis of the Specimens Inventoried

Our inventories enabled us to count a maximum of 254 individuals at the Moudjbara site compared with 225 at the Senalba site, totalling 479 invertebrates belonging to 9 classes, 16 orders, 38 families and 41 species (Fig.1). Almost all the specimens were arthropods, with only 1 individual from the Nematodes phylum collected at the Senalba site. Overall, the Moudjbara fauna remains the best represented in terms of abundance, with a rate of 53% of the total number, as well as in terms of richness for all taxa combined, i.e. 23 families and 26 species compared with 15 for each of the above-mentioned ranks. As far as phyla are concerned, the difference between our sites is negligible by far, and the richness is therefore considered to be equitable, as are the orders, of which there are six (8).

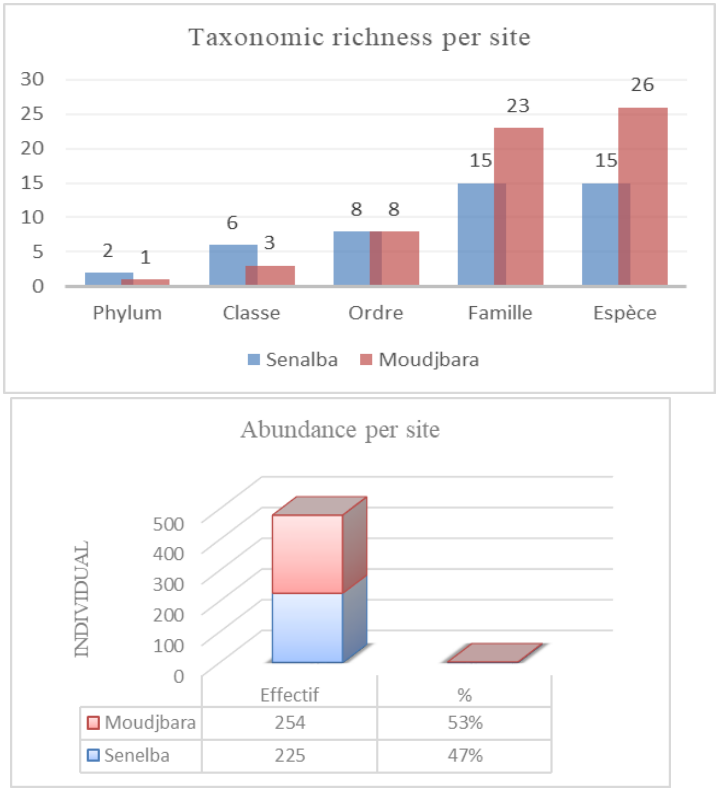

Fig. 1 : Invertebrate population density and taxon distribution by study site

The detailed inventory lists of all the specimens captured are inserted in the table drawn up according to phyla, classes, orders, families and species Table 1.

Table 1. Inventory of pedofauna collected at Senalba by manual sorting and BERLESE-TULLGREN device.

SENALBA										
Phylum	Class	Order	Family	Species	Author	Stage		ni	∑ni	S
						A	L			
NEMATODA	Nema. C. Ind	Nema. O. Ind	Nema. F. Ind	Nema. Sp. Ind	Diesing, 1861	1	0	1	**1**	**1**
ARTHROPODA	Arachnida	Sarcoptiformes	Acaridae	*Tyrophagus sp*	Oudemans, 1924	20	32	52	**52**	**1**
	Entognatha	Collembola	Poduridae	*Podura sp*	Linné, 1758	16	11	27	**27**	**1**

	Chilopoda	Lithobiomorpha	Lithobiidae	*Lithobius forficatus*	Linné, 1758	1	0	1	**1**	**1**
	Diplopoda	Julida	Julidae	*Julus terrestris*	Linné, 1758	2	0	2	**2**	**1**
	Insecta	Hymenoptera	Encytridae	*Ooencyrtus pityocampae*	Mercet, 1921	10	0	10	**142**	**1**
		Diptère	Sciaridae	*Bradisya sp*	Winnerz, 1867	93	0	93		**1**
			Chironomidae	*Chirono. Sp . Ind*	Newman, 1834	7	0	7		**1**
			Drosophilidae	*Droso. Sp . Ind*	Loew, 1862	1	0	1		**1**
			Dipt. F. Ind	*Dipt. Sp . Ind*	Linné, 1758	2	0	2		**1**
		Coléoptère	Staphylinidae	*Atheta sp*	Thomson, 1858	10	9	19		**1**
			Cantharidae	*Cantha. Sp.Ind*	Imhoff, 1856	7	0	7		**1**
			Latridiidae	*Latri. Sp. Ind*	Erichson, 1842	1	0	1		**1**
			Curculionidae	*Trypodendron sp*	Stephens, 1830	1	0	1		**1**
			Scarabaeidae	*Rhizotrogus majalis*	Latreille, 1802	0	1	1		**1**
Total									**225**	**15**

Table 2. Inventory of soil fauna collected at Moudjbara by manual sorting and BERLESE-TULLGREN device.

MOUDJBARA										
Phylum	Class	Order	Family	Species	Author	Stade		ni	**∑ni**	**S**
						A	L			
ARTHROPODA	Arachnida	Sarcoptiformes	Acaridae	*Acarus siri*	Linnaeus, 1758	30	10	40	142	4
			Euzetidae	*Euzetes globulus*	Nicolet, 1855	15		15		
			Oppioidea	*Multioppia glabra*	Mihelcic, 1955	20		20		
			Peloppiidae	*Ceratoppia bipilis*	Hermann, 1904	45	20	65		
		Araneae	Gnaphosidae	*Civilizelotes ibericus*	Senglet, 2012	1		1		2
				Leptodrassex simoni	Dalmas, 1919	1		1		
	Entognatha	Collembola	Poduridae	*Friesinae sp*	Massoud, 1967	25	15	40	40	1
	Insecta	Diptère	Sciaridae	*Bradisya sp*	Winnerz, 1867	10		10	72	3
			Ceratopogonidae	*Forcipomyia sp*	Meigen, 1818	10		10		
			Dipt. F. Ind	*Diptera sp*	Linné, 1758	2		2		
		Hemiptera	Cicadellidae	*Balclutha sp*	Kirkaldy, 1900	2		2		2
			Psyllidae	*Baeopelma foersteri*	Flor, 1861	2		2		
		Hymenoptera	Formicidae	*Plagiolepis schmitzii*	Forel, 1895	12		12		4
				Lepisiota franenfeldi	Mayr, 1855	2		2		
			Eurytomidae	*Sycophila sp*	Marcheur, 1871	1		1		

			Dryinidae	*Aphelopus varicornis*	Brues, 1906	1		1		
		Coléoptère	Staphylinidae	*Atheta sp*	Thomson, 1858	5		5		7
			Cantharidae	*Cantha. Sp.Ind*	Imhoff, 1856	15		15		
			Carabidae	*Microlestes sp*	Schmidt-Goebel, 1846	1		1		
				Harpalus winklei	Schauberger, 1923	1		1		
			Mélyridés	*Dasytes plumberus*		1		1		
			Ténébrionidés	*Alphitophagus bifasciatus*	(Disons, 1824)	2		2		
			Elateridae	*Agriotes sp*	Eschscholtz**, 1829**		1	1		
			Chrysomélidés	*Longitarsus luridus*	Scopoli, 1763	1		1		
		Hémiptères	Delphasidae	*Nothodelphax sp*	Fennah , 1963	2		2		2
			Miridae	*Plagiognathus arbustorum*	(**Fabricius, 1794**)	0	1	1		
Total									254	25

Overall, analysis of the tables shows that species vary in their presence; some are better represented, while others are only weakly represented. The main fauna groups inventoried were microarthropods (Acari; Collembola) and insects. They represent 55%, 16% and 28% respectively of the total number of animals counted at Moudjbara. At Senalba, insects dominated with a rate of 63.1%, followed by microarthropods (35.1%) and myriapods with only 1.5%.

The Araneae and Nematoda are both uncommon taxa, the former being collected at Moudjbara and the latter at Sénalba, and the least abundant taxa, whose numbers vary from 1 to 3 individuals of the total fauna collected. The proportion of each group is shown in Figure 2.

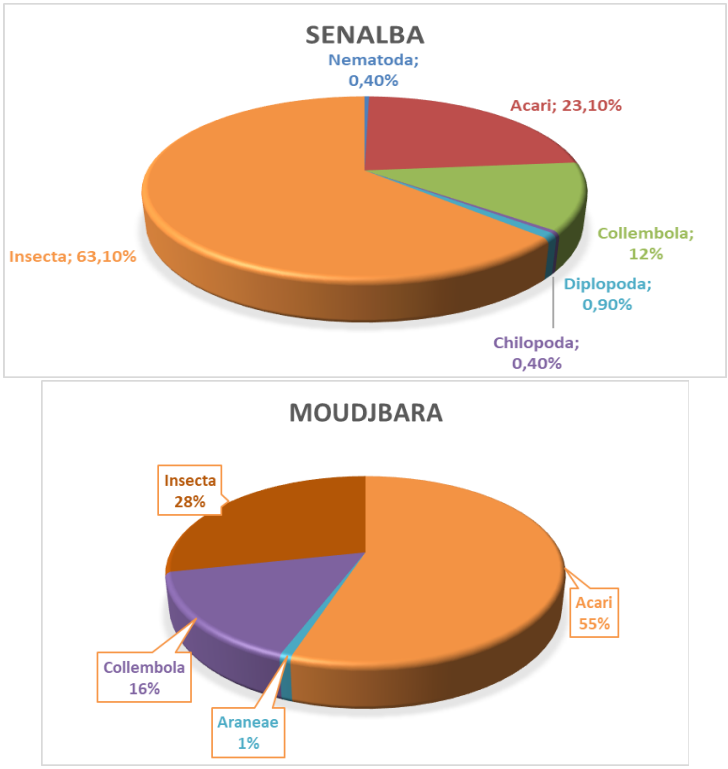

Figure 2 : Proportions of the most dominant taxa at the two study sites.

3.1.2. Study of Populations by Taxon

- **Class Arachnida**

The arthropods comprise several classes, including the arachnids, which include spiders and the various orders of mites. The latter account for almost all the arachnids at Moudjbara (55%) (Fig.3).

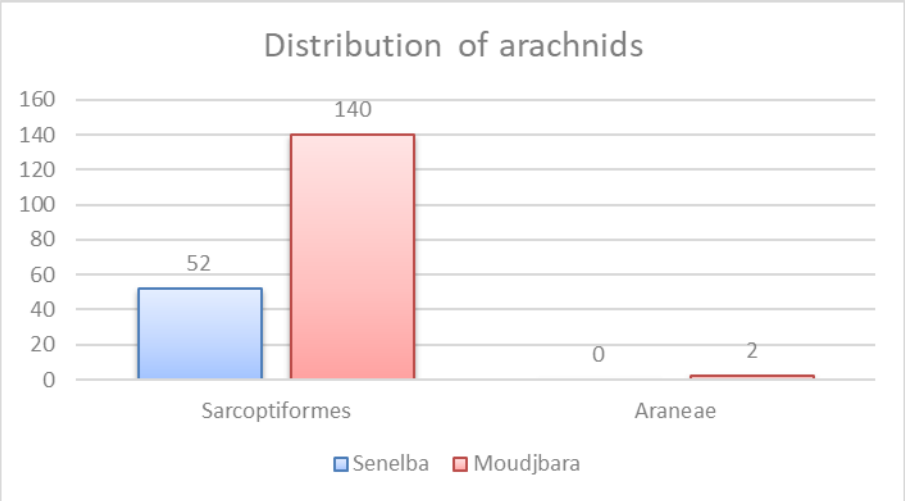

Fig. 3 : Distribution of arachnids by study site.

- **Orders of the Araneae**

Most spiders live in strictly defined areas. The boundaries are defined by physical conditions such as temperature, humidity, wind and light intensity, as well as biological factors such as vegetation type, available food, competitors and enemies.

Sampling at Moudjbara resulted in the identification of 2 Araneae spread over 2 identified species, belonging to the Gnaphosidae family. Representatives of the Araneidae are considered to be among the active epigean fauna moving on the surface. Generally, it is the smallest spiders that remain close to the ground [15]. The most suitable method for counting these arthropods would therefore be the current Barber jar method. Using this method, [6] in their study on the ecology of the arthropodofauna recorded 11 families containing 21 species of spiders in a reforestation at Chbika (Djelfa). In a forest formation in Ben Aknoun Park, [16] recorded 23 Araneae belonging to 17 species. [17] counted 13 families and 32 species in 6 study stations in Sénalba Chergui.

- **Subclass Acari**

Mites are very abundant in soils. They can be found in the mulls of deciduous forests as well as in the mores of coniferous forests or in heather soils, where their numbers can vary from 50,000 to 500,000 per square metre [18]. The values recorded in our study are low in comparison with the densities mentioned above, but relatively high in relation to the numbers of the other fauna groups inventoried. Sampling of the Moudjbara reforestation revealed 140 mites belonging to a single order: the Sarcoptiformes, made up mainly of the Peloppiidae and the Acaridae.

The Sarcoptiformes are better represented and are divided into 4 families. These are, in order of importance, Peloppiidae > Acaridae > Oppioidea and Euzetidae. They are all represented by a single species, namely : *Ceratoppia bipilis* with a rate of 46.43%, *Acarus siri* (28.57%), *Multioppia glabra* (14.29%) and *Euzetes globulus* (10.71%), respectively (Fig. 4).

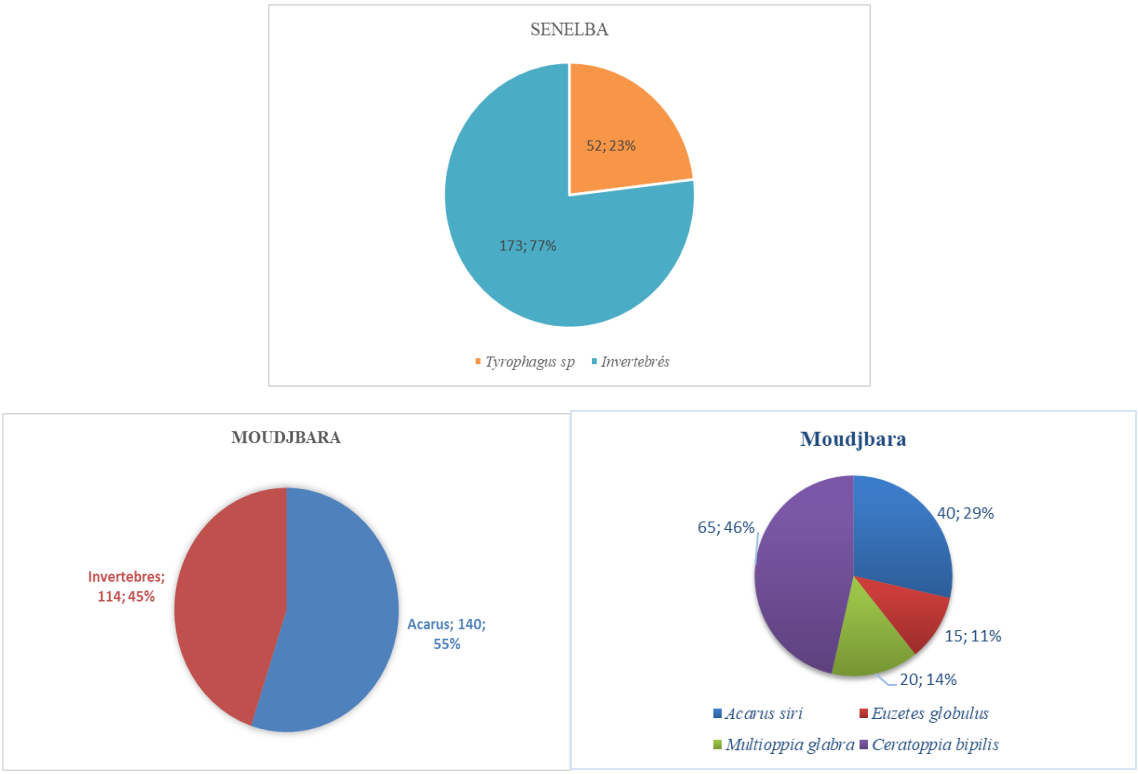

Figure 4 : Proportion of mites in the invertebrate populations recorded in each study environment.

Analysis of the figure above shows that the *Ceratoppia bipilis* species stood out from the others, dominating the mite population. However, the richness of the acarofauna is greater, with 4 species compared with 1. The common species are *Ceratoppia bipilis* (n=65), *Acarus siri* (n=40), *Multioppia glabra* (n=20) and *Euzetes globulus* (n=15).

The trend is quite the opposite at Sénalba, where no Oribatida mites have been recorded. A decrease in the richness of the acarofauna was also observed there, with the result that the species *Tyrophagus sp* is the only representative of the mites at this site, with a total of 52 individuals. Their presence is compromised where the climate is less rainy, temperatures less mild, vegetation less dense and litter almost non-existent. The same observation was made by [19] in his study of soil mites in several regions of Algeria. His results showed a decreasing distribution of acarofauna in general, and of Oribates in particular, from the humid bioclimatic zone to the sub-humid and semi-arid bioclimates.

The specific richness values were of the order of 28, 19 and 15 Acari species, respectively. Most of the Oribates were found in the humid bioclimate with 62.7% of the total number of Acari collected, followed by the sub-humid bioclimate with 29.6%. The semi-arid bioclimatic zone appeared to be much less rich, with only 10.7% of the total acarofauna recorded. According to the same author, this gradation in spatial distribution is perfectly in keeping with the ecological conditions that characterise the environments studied, in particular climatic factors such as temperature and rainfall [20]; [21] as well as the nutritional substrate [22]. Temperature varies very little at depth and is one of the most important factors due to the superficial location of most mites [23].

- **Order Collembola (Entognatha)**

According to [24] Collembola, like mites, are found mainly in the humus episolum, where they and mites form the most abundant communities of individuals. Collembola have invaded every terrestrial biotope on our planet. They live most often in forests, in litter, humus, the first few centimetres of soil and in vegetation.

In our two study environments, the Order Collembola is the only representative of the Class Entognatha, with participation rates of around 16% in Moudjbara and 12% in Senalba (Fig.5). At Moudjbara, the Poduridae family

clearly dominates in terms of the number of unsold specimens, with 40 of the species *Friesinae sp* compared with 27 of the species *Podura sp*.

Fig. 5 : Proportion of springtails in the invertebrate populations recorded in each study environment.

In comparison with other work carried out in several regions of the country, all the authors confirm the exceptional preponderance of the order Poduridae. [25] cites 57 species in 26 genera belonging to 5 families, collected in seven localities. [26] cites 49 species found in five localities in north-east Algeria. They belong to 5 families and 27 genera. The Entomobryomorpha are represented by 2 families, 15 genera and 17 species, i.e. 42.5%. [25] cites 41 species in 4 families and 18 genera. [27] lists 5 families, 20 genera and 33 species. According to [28], Collembola have an even harder time withstanding high temperatures if they are subjected to a dry climate that dehydrates them, although there are forms that can withstand 40" or even 50°C. [29] indicates that temperature has a very strong influence on the biology of microarthropods; the incubation period for mite and springtail eggs varies from 1 to 6 weeks depending on the species and temperature conditions.

- **Class Insecta**

Like all living creatures, insects play a part in the balance of ecosystems. There are around two million species currently described, representing 90% of all known animal species [30].

At Senalba, the insect class is the best represented taxon in terms of both richness and density, with 63% of the total number of invertebrates collected at the site. It includes 142 specimens in 3 orders, 10 families and 10 species. The order Diptera stands out from the others, leading with 103 specimens, i.e. 72.5% of the entomofauna collected, followed by Coleoptera with 29 individuals (20.4%) and lastly Hymenoptera with a density of around 10 individuals (7.1%). The first order contains 4 families, the second 5 and the last only one (Fig.6).

The Hymenoptera class is the least species-rich, with 10 individuals all belonging to the species Ooencyrtus pityocampae of the Encyrtidae family. This is an oophagous parasitoid of the Aleppo pine processionary fly *Thaumetopoea pityocampa* Schiff. Processionary infestation levels go through cyclical outbreak phases followed by latent periods. The gradations generally occur over 6 to 8 years [31]. Massive attacks by this insect have reappeared, particularly in the young Aleppo pine plantations of the "Barrage Vert". The exclusive monoculture of this species has led to an explosion and a favourable environment for populations of the defoliating pine processionary. In a study carried out by [32], 3 processionaries were counted in an Aleppo pine reforestation at Chbika, which runs northwards from Senalba Chergui.

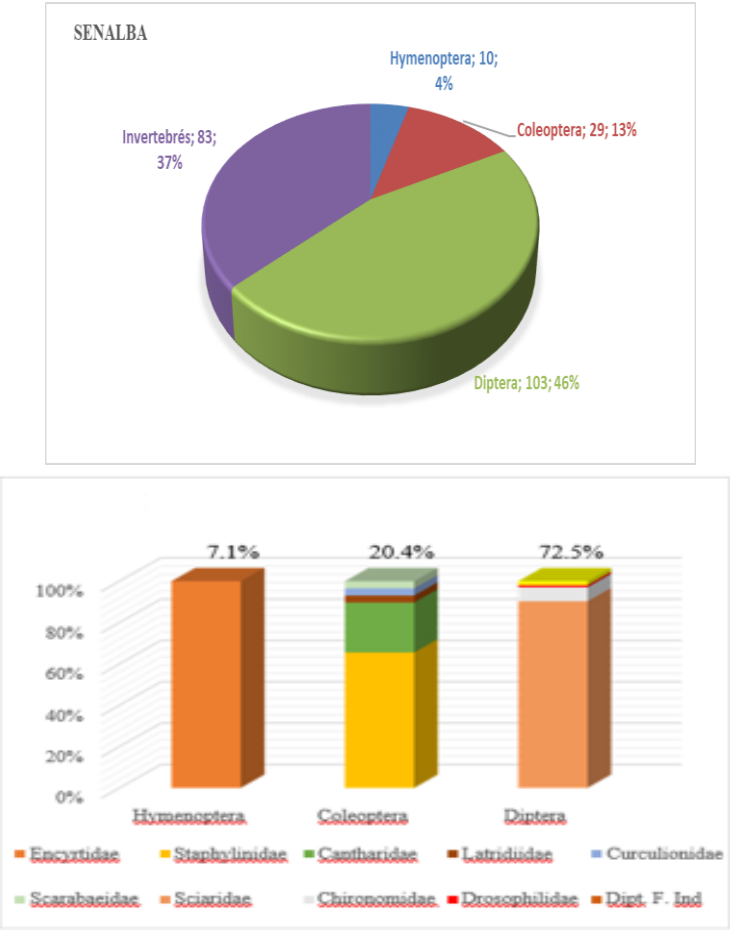

Fig. 6: Density and composition of the class of insects recorded at Senalba.

In the Moudjbara reforestation, Coleoptera make up the majority of this group with 27 individuals belonging to 7 families, in order of importance: Cantharidae (15) > Staphyilinidae (5) > Tenebrionidae (2) > Carabidae (1) = Melyridae (1) = Elateridae (1) = Chrysomelidae (1). They are followed by Diptera with 22 individuals of the Sciaridae (10) > Ceratopogonidae (10) family and only 2 individuals followed by Hymenoptera with 16 individuals belonging to 3 families including 14 Formicidea and (7) Hemiptera individuals. The proportions of each order and their distribution within families are shown in Figure 7.

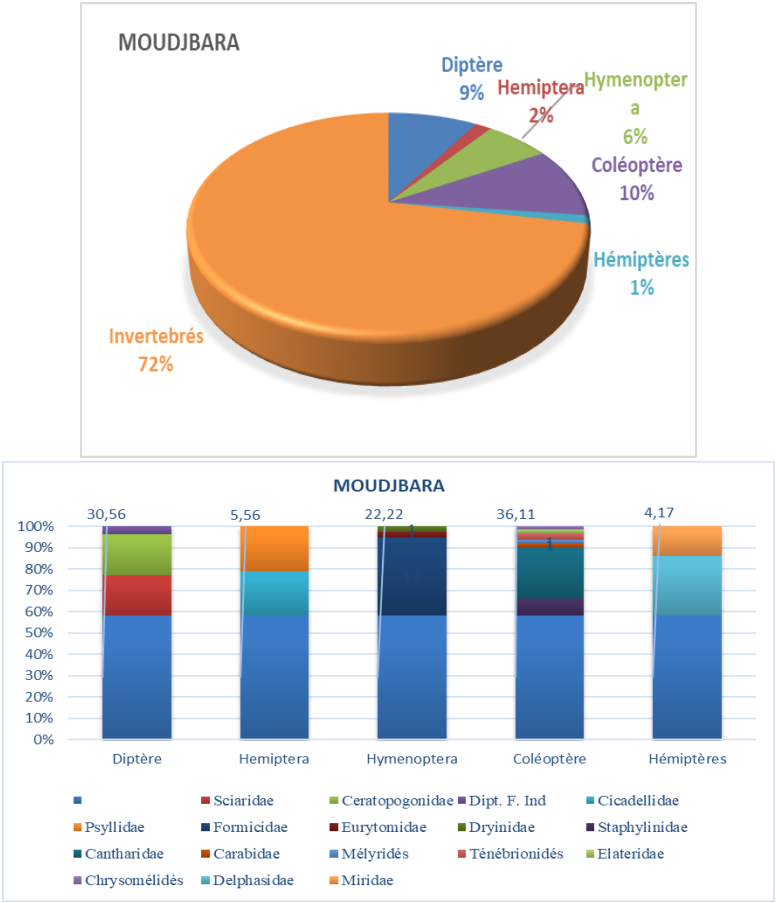

Fig. 7 : Density and composition of the class of insects recorded at Moudjbara.

[33] in the stand of Aleppo pine with holm oak at Séhary Guebli (Djelfa), listed 9 orders belonging to the class Insecta. The orders Hymenoptera and Diptera were the most numerous, with numbers of 1,537 (92.4) and 48 individuals (2.9%) respectively. The Coleoptera were represented by 25 individuals (1.5%) and finally the Homoptera by 22 individuals (1.3%). Furthermore, during their census of arthropods in an Aleppo pine reforestation at Chbika, [32] found 10 orders belonging to the insect class. The order Hymenoptera was the most dominant with 1101 individuals (92.1%) followed by Coleoptera with 35 individuals (2.9%) and in third place came the order Diptera with 30 individuals (2.5%). The other orders were sparsely recorded, with the number of specimens varying between 1 and 11 individuals only. Such high densities are justified by the method used by these authors, in particular the Barber pots, which are mainly specific to walking arthropods.

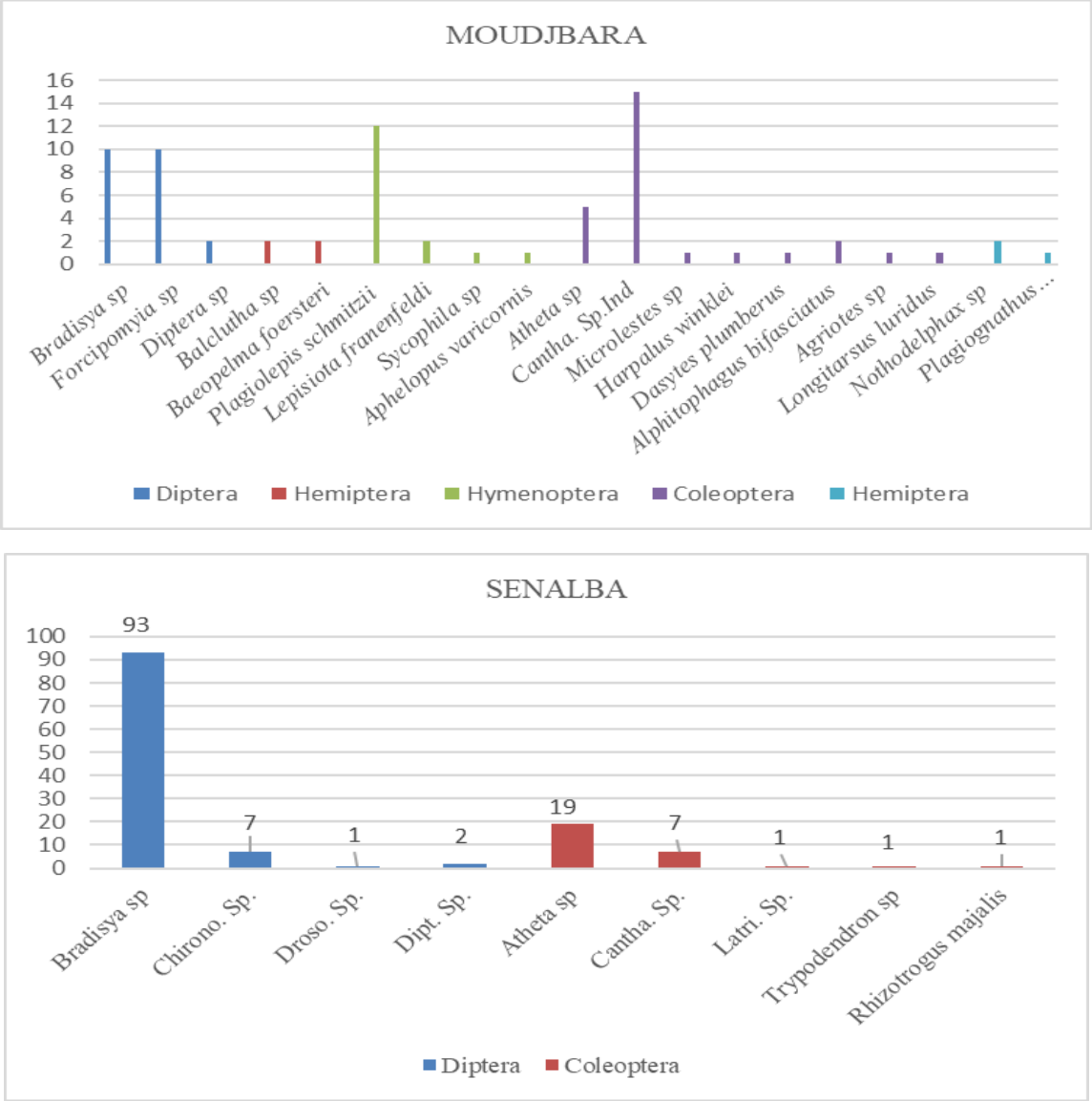

Fig. 8 : Abundance (ni) of entomofaunal species collected in each study environment.

Analysis of the figures above draws our attention to 3 orders in particular: Diptera, Coleoptera and Hymenoptera. They are richer in species than the rest of the Orders, and contain certain species with a high frequency of occurrence, hence their dominance in numerical terms. We also note that the taxa common to our two study environments are 3 for the Orders (Hymenoptera; Coleoptera; Diptera), 6 for the Families (Staphylinidae; Cantharidae; Latridiidae; Sciaridae; Chironomidae; Drosophilidae), and only 2 for the species (*Atheta sp*.; *Bradysia sp*.) (Fig. 8).

3.1.3. Application of ecological indices of composition and structure

- **Species richness (S)**

The soil fauna inventories carried out on soil samples from our two study environments enabled us to record a total of 40 species, including 39 arthropods and 1 nematode, belonging to 9 classes, 16 orders, 38 families and 41 genera. The highest value was recorded at Moudjbara, with a species richness of around 26 species (Fig.9).

The number of species collected in the Sénalba is 15. The study carried out by [34] on the arthropod composition in two different biotopes, the Ghoufi palm grove (Batna) and the Sénalba Chergui natural forest, revealed 99 species recorded, including 51 species inventoried in the Sénalba forest in 4 stations with Aleppo pine in its natural state. A

greater sampling effort inevitably leads to denser collections in terms of numbers and species. The same applies to the length of the sampling periods.

Thus, for equivalent sampling and identification conditions, the Moudjbara site remains much richer in species, with more than double the number recorded at Sénalba.

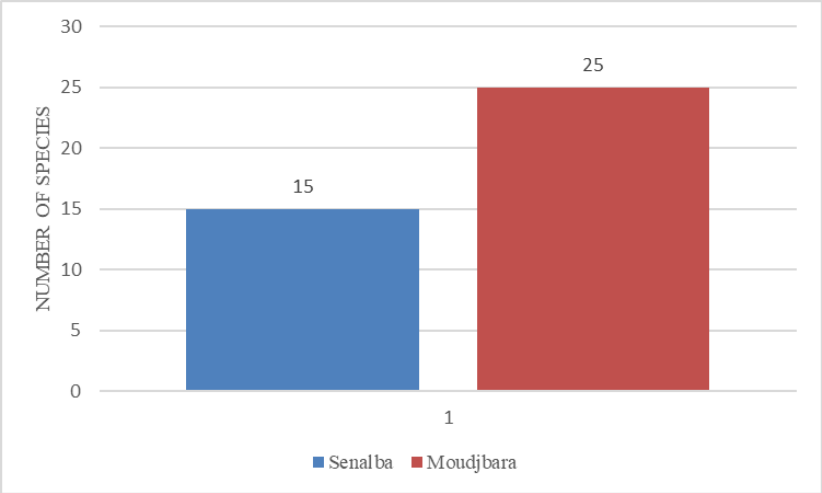

Fig. 9 : Specific richness recorded in the study environments

- **Relative abundance (Ar%)**

In Sénalba, insects dominate with 2 dominant species and 2 influential species totalling 60.44% of the inventory, followed by microarthropods with 2 dominant species whose abundance is of the order of 35.11%. The 4 dominant species are, in order of importance: *Bradysia sp* (41.33%) > *Tyrophagus sp* (23.11%) > *Podura sp* (12%) > *Atheta sp* (8.44%). Three influential species belonging to the entomofauna were noted, namely: the hymenopteran *Ooencyrtus pityocampae* (4.44%), followed in equal parts (3.11%) by an unidentified diptera and a beetle, whose respective families are Chironomidae and Cantharidae. The remaining 8 resident species include 5 insects, 2 myriapods and 1 nematode. The relative abundance of each species is shown in Figure 10.

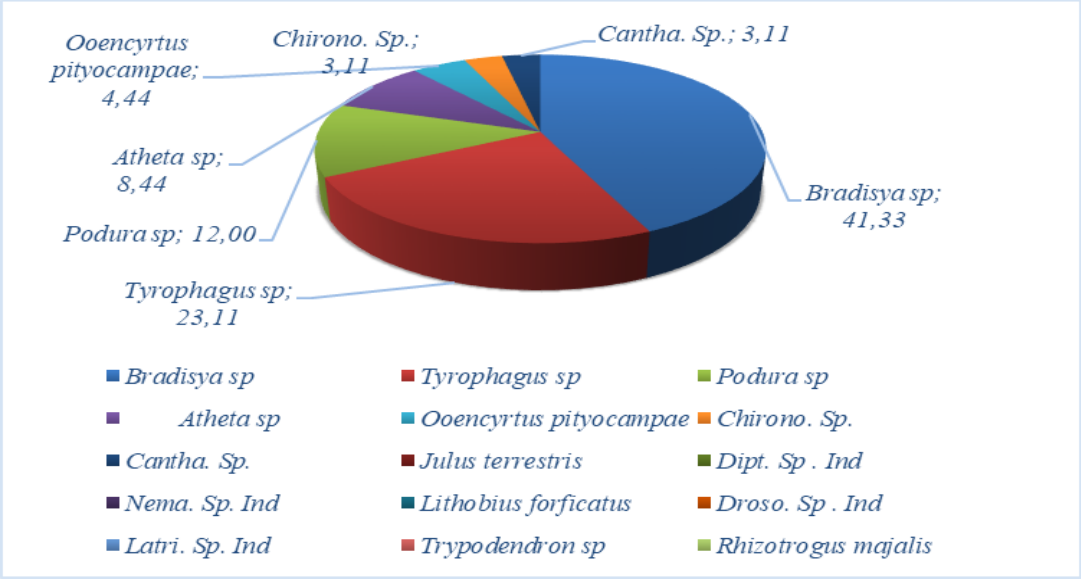

Fig. 10 : Relative abundance (%) of species recorded at Senalba.

In the Moudjbara, microarthropods dominate with 3 dominant species and 1 influential species totalling 74% of the inventory, whose abundance is in order of importance: *Ceratoppia bipilis* (29%) > *Acarus siri* (18%) = *Friesinae sp* (18%) > *Euzetes globulus* (7%), then insects with 1 dominant species and 4 influential species whose abundance is in order of importance: Cantha. Sp. (7%) > *Plagiolepis schmitzii* (5%) >*Forcipomyia sp* (4%) = *Bradisya sp* (4%) (Fig. 11).

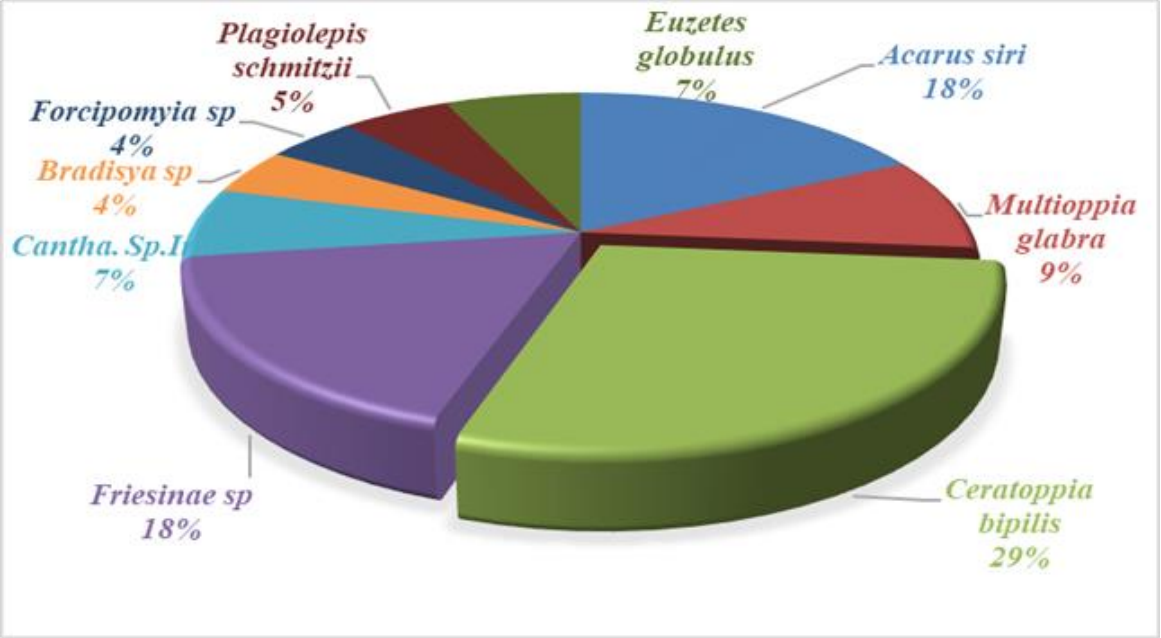

Figure 11 : Relative abundance (%) of species recorded at Senalba.

- **SHANNON-WEAVER diversity (H') and PIÉLOU equitability (E)**

It is 3.11 bits at Moudjbara, indicating a medium-diversity stand, and 2.34 bits at Senalba, indicating a medium-diversity stand.

For equitability we note that the values are greater than 0.5, i.e. 0.67 at Moudjbara and 0.6 at Sénalba, which implies that regularity tends towards equilibrium and that the species are more or less equitably distributed during our study period (Fig.12).

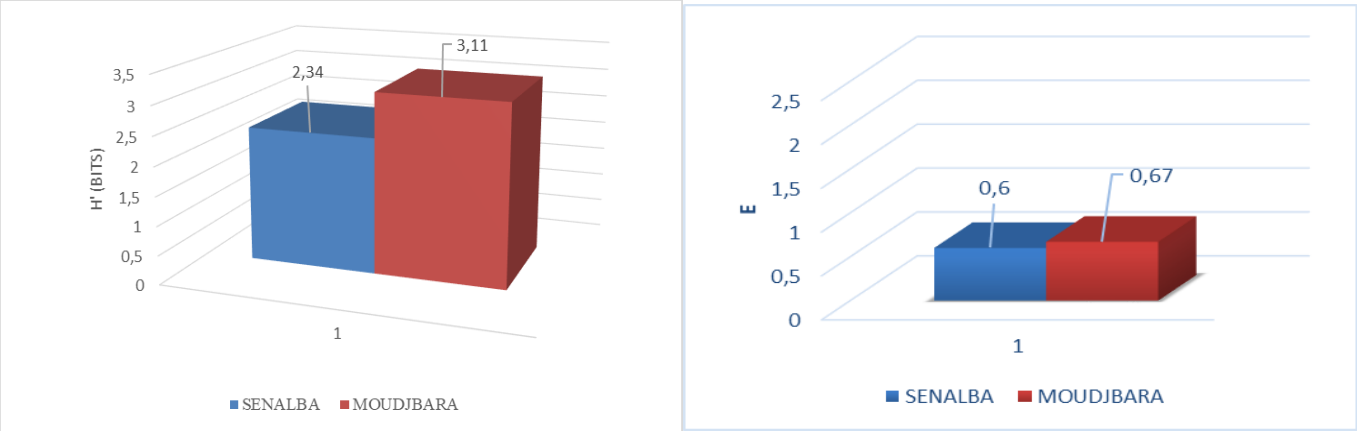

Figure 12 : Equitability and diversity indices in the two study environments.

CONCLUSION

Diversity results from the interaction between ecological and biogeographical phenomena, thus favouring the maintenance of a homogeneous fauna.

The aim of this study was to compare the soil fauna populations of two Aleppo pine stations belonging to the semi-arid bioclimatic zone, one located at Moudjbara and the other at Sénalba Chergui in the steppe of the Wilaya of Djelfa. Spot sampling was carried out during the spring using a systematic approach with 12 soil sampling points. The soil fauna was extracted using the BERLESE-TULLGREN device on composite samples over a period of 8 days.

Analysis of the soil sample inventories revealed a total of 479 specimens belonging to 9 classes, 16 orders, 38 families and 41 species. The Moudjbara fauna remains the best represented in terms of abundance, with a rate of 53% of the total number, as well as in terms of richness for all taxa combined, 23 families and 26 species compared with 15 for each of the above-mentioned ranks.

On the basis of the data collected, it is clear that the Moudjbara forest seems to offer ecological conditions that are more conducive to the establishment of a more diverse soil fauna community than the Sénalba Chergui forest.

The results obtained in the present study are not insignificant and constitute a solid basis for the rest of the study, since they provide an initial view of the composition and structure of the soil fauna in the two regions studied. Other sampling techniques may also be used for more comprehensive soil fauna inventories, such as the barber pots widely used to capture walking macrofauna.

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