FLORISTIC DIVERSITY OF THE OULED BECHIH FOREST (ALGERIA)

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ABSTRACT

The objective of this study is to inventory the flora of the Ouled Bechih forest (Algeria) with a quantitative and qualitative analysis through significant parameters. This study allowed the identification of 27 species belonging to 26 genera and 17 families. The results show an important diversity of the regional flora which is essentially dominated by the Asteraceae, Fabaceae, Fagaceae and Rosaceae. Hemicryptophytes and geophytes dominate the biological spectrum of the flora of this forest, which is morphologically characterised by the dominance of perennial herbs. The analysis of the chorological types shows the predominance of the Mediterranean element.

Keywords: *Ouled Bechih forest, inventory, floristic diversity*

INTRODUCTION

Mediterranean plant biodiversity is the product of a complex and eventful palaeogeography, but also of a traditional and harmonious use of the environment by man [1]. The flora of the Mediterranean basin is of great interest, given its great richness linked to the heterogeneity of historical, palaeogeographical, palaeoclimatic, ecological and geological factors that characterize it, as well as to the age-old impact of anthropic pressure [2]. Belonging to the Mediterranean forests, the Algerian forest, with its biological diversity, is an essential element of the ecological, climatic and socio-economic balance of different regions of the country. Its current situation is one of the most critical in the Mediterranean region [3]. Indeed, the persistence of destructive factors such as fires, overgrazing and land clearing only accentuates the process of degradation of the existing forest system and the loss of its biological diversity [4].

The present study focuses on the open forest of Ouled Bechih, located in eastern Algeria. This forest is used for cork production and is characterized by a very high biodiversity. The objective of this study is to inventory the flora of this forest with a quantitative and qualitative analysis through significant parameters: global composition (number of taxa), biodiversity indices, morphological types, biological types and chorological type in order to evaluate the importance of the floristic diversity of this region.

MATERIAL AND METHODS

Presentation of the study area

Forest of Ouled Bechih is located north of Souk Ahras (Algeria). The study area is located between the coordinates 36°21'26" north latitude and 7°50'08" East longitude (Fig. 1). It covers an area of 6582 ha, mainly composed of *Quercus suber* and *Quercus canariensis*. This region is characterized by a sub-humid climate. The average annual temperature is 16°C and the average annual rainfall is 625 mm, with an atmospheric humidity of 68%. The altitude of the Ouled Bechih forest varies from 790 m to 1050 m, with slopes of over 15%.

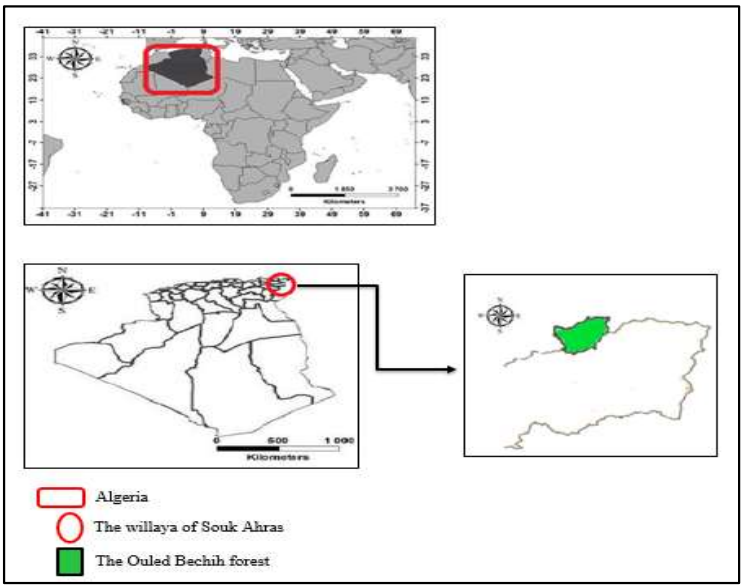

Fig.1. *Study area.*

Choice of study stations

4 randomly selected rectangular plots with an equivalent surface area of 900m2 (30m x 30m) within each plot all individuals are surveyed foot by foot. Floristic inventory The species encountered in the study plots were inventoried, identified with a PlantNet smartphone application, and then classified according to family, genus, biological, morphological and chorological type.

RESULTS AND DISCUSSION

The floristic inventory of the different plots of the Ouled Bechih forest revealed 27 taxa belonging to 26 genera and 17 families (Table 1). The most common families are: Asteraceae, Fabaceae, Fagaceae and Rosaceae (Fig. 2). These families represent 50% of all species encountered [5]. The species inventoried represent the floristic procession of *Quercus suber* and *Quercus canariensis* such as: *Hypochaeris glabara, Bellis prennis, Lotus corniculatus, Ranunculus muricatu, Charybdis maritima...*

Table 1. *Floristic diversity of the Ouled Bechih forest.*

Family	***Species***	***Biological type***	***Morphological type***	***Chorological type***
Fagaceae	*Quercus suber*	Phanerophytes	Woody	Western Mediterranean
	Quercus canariencic	Phanerophytes	Woody	Western Mediterranean
Asteraceae	*Hypochaeris glabara*	Therophytes	Perennial herb	European
	Hyoseris radiata	Hemicryptopytes	Perennial herb	European-Mediterranean
	Bellis prennis	Hemicryptopytes	Perennial herb	Eurasia - European
	Artemisia arborescens	Chamephytes	Perennial herb	Western Mediterranean
	Carduus nutans	Hemicryptophytes	Annual herb	Eurasian
	Echinopss phaerocephalus	Hemicryptophytes	Perennial herb	Mediterranean
	Galactites tomentosus	Hemicryptophytes	Annual herb	Mediterranean
Fabaceae	*Lotus corniculatus*	Hemicryptophytes	Perennial herb	Southern Orophyte
	Calicotume spinosa	Phanerophytes	Woody	Western Mediterranean
	Cytisus villosus	Chamephytes	Woody	Mediterranean
Ranunculaceae	*Ranunculus muricatus*	Therophytes	Annual herb	Mediterranean
Iridaceae	*Romulea bulbocodium*	Geophytes	Perennial herb	Mediterranean
Asparagaceae	*Charybdis maritima*	Geophytes	Perennial herb	Mediterranean
Rosaceae	*Rubus ulmifolius*	Hemicryptopytes	Woody	European
	Carataegus monogyna	Phanerophytes	Woody	Eurasian
Xanthrrhoea-ceae	*Asphodelus ramosus*	Geophytes	Perennial herb	Mediterranean-Atlantic
Oleaceae	*Phillyrea media*	Phanerophytes	Woody	European
Ericaceae	*Erica arborea*	Phanerophytes	Woody	Cosmopolitan
Liliaceae	*Gagea pratensis*	Geophytes	Perennial herb	European
Caryophylla-ceae	*Stellaria media*	Hemicryptopytes	Annual herb	Cosmopolitan
Araceae	*Arum italicum*	Geophytes	Perennial herb	Mediterranean-Atlantic
Dennstaedtia	*Pteridium aquilinum*	Geophytes	Annual herb	Cosmopolitan
Primulaceae	*Cyclamen hederifolium*	Geophytes	Perennial herb	Southern European
Lamiaceae	*Rosmarinus officinaliss*	Chamephytes	Perennial herb	Mediterranean
Thymelaeaceae	*Daphne gnidium*	Phanerophytes	Woody	Mediterranean

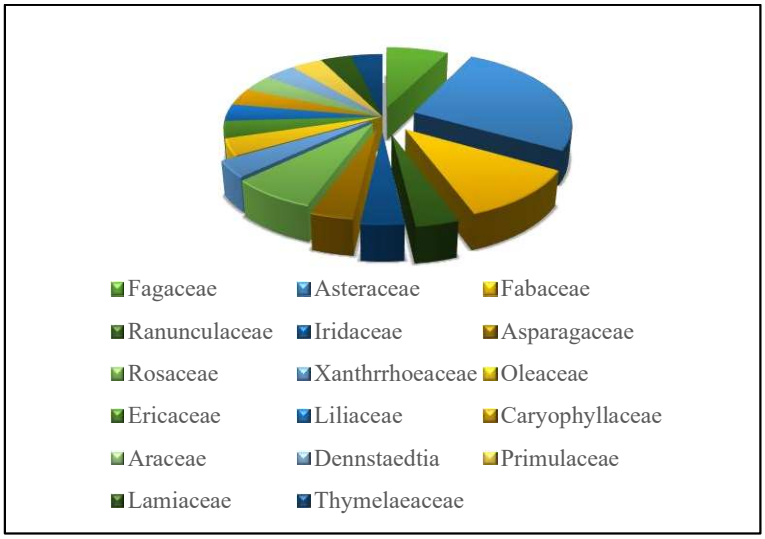

Fig. 2. *Systematic and floristic composition of the vegetation.*

The biological spectrum according to [6] is the percentage of different biological types. The dominance of a biological type is noted, which allows the plant formation to be named. The latter is therefore the physiognomic expression, which reflects the environmental conditions. The overall biological spectrum of the vegetation is of the type HE> PH > GE > CH > TH with the dominance of hemicrytophytes (Fig. 3).

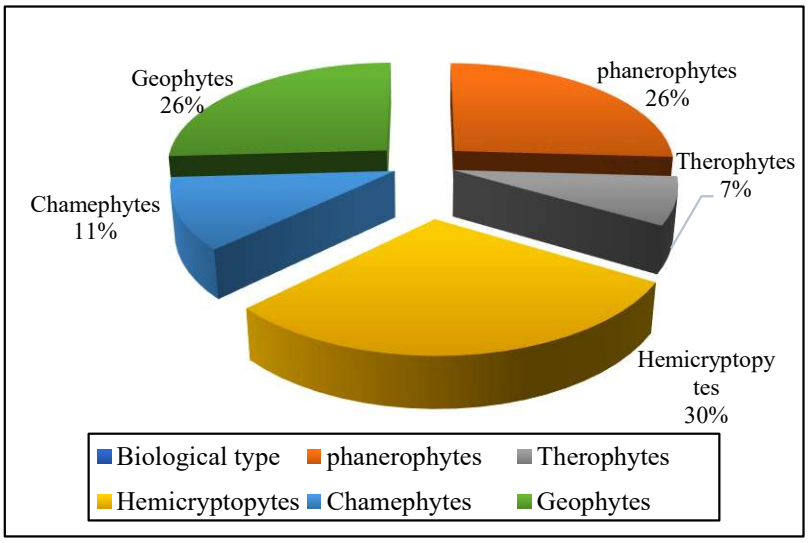

Fig. 3. *Biological type of vegetation in the Ouled Bechih forest.*

The morphological type leads to the natural shape of the plant, the precise aspect of the shape obtained and depending on the variations of the environment. Morphologically, forest vegetation is characterized by heterogeneity between woody (33%), herbaceous and between perennials (48%) and annuals (19%) (Fig. 4).

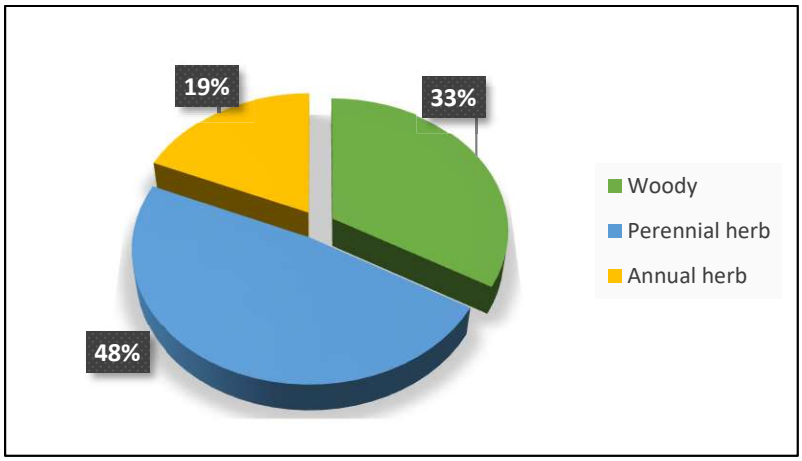

Fig. 4. *Morphological type of vegetation in the Ouled Bechih forest.*

Geobotany is the study of the distribution of plants around the world. It is defined as the study and understanding of the distribution of living organisms in the light of present and past factors and processes [7]. Phytogeographic studies also constitute a true model for interpreting regression phenomena (Fig. 5) [8]. For Quezel [9], a phytogeographical study is an essential basis for any attempt to conserve biodiversity.

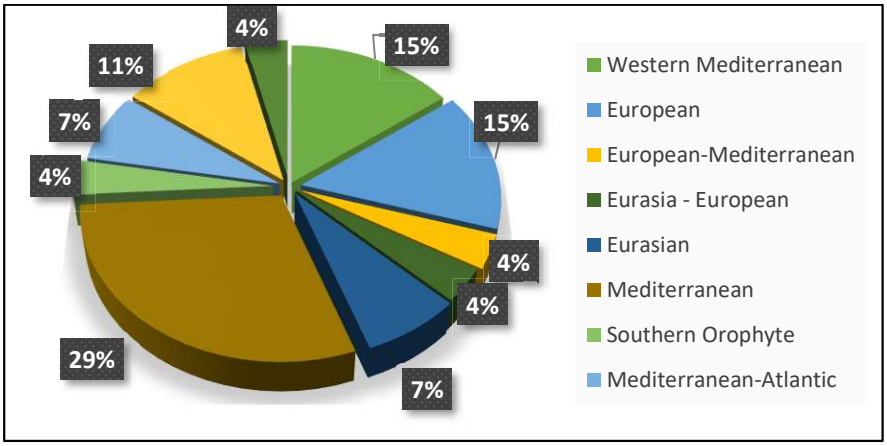

Fig. 5. *Chorological type of the vegetation of the Ouled Bechih forest.*

CONCLUSION

The analysis of the cork oak stands allowed a better knowledge of their floristic values based on three types of spectra (morphological, biological and biogeographical). The biogeographical distribution shows that the Mediterranean element dominates the forest. The latter follows a pattern: Th > HE > CH > GE > PH. Therophytes have the highest rate, which means that the forest is very open and degrading. This study was carried out in the forest of Ouled Bechih (Algeria). The results of the floristic diversity show the existence of 27 species which are distributed in 26 genera and 17 families, of which the most important are: Asteraceae, Fabaceae. The biological type of the plant formation of this forest shows a dominance of hemicryptophytes. The floristic diversity of this forest is dominated by woody plants on the one hand, and by Mediterranean species on the other.

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