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Diagnosis of the floristic diversity of Ain Skhouna (Steppe West-Algerian)

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Abstract

This work allowed making an assessment of the floristic diversity of Ain Skhouna, in Western Algeria, based on the phytoecological aspect, biological and biogeographically of this heritage. Given the nature of the problem to be addressed, we used the Zuricho Montpelieraine developed by Braun-Blanquet method, this method is to harvest all plant species encountered, and list species on a surface plot (IEA minimum), the floristic surveys according to the method of Braun-Blanquet. The floristic diversity is relatively low compared to other areas of the South-west Algeria areas, it is closely linked to the severe climatic conditions coupled with a strong action anthropozoique which translates by the preponderance of species such as: *Artemisia herba-alba, Atriplex halimus, Peganum harmala*, *Salsola vermiculata*. Currently the conservation of different taxa is scientific priorities for assessment and management of this biological heritage.

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Introduction

Biological diversity must be considered not only as a global humanity's heritage, but also as one of the potential bases of local development in relation to current and potential uses by people. Studies on the biological diversity, its utilization and conservation should therefore not be restricted to areas of high wealth ("hot spots"), but extended to all the regions of the world. Generally, dry areas have not benefited from attention given their contribution to national and international strategies on the conservation and recovery of biological diversity. However, since the Rio conference in 1992, the fight against desertification and the conservation of biological diversity in dry areas were highlighted, particularly in circum-Saharan Africa.

Changes in occupation of the land and their use in dry areas and degradation that results are therefore the main factors that explain the loss of biological diversity through the overexploitation of plant or animal populations and the destruction of habitats. In this context of degradation, the assessment of biological diversity requires the study of the various ecosystem components.

The present work was carried out at the level of the steppe region of Ain Skhouna in the Algerian South-west, the objective of this study were the assessment and the description of the state of the ground vegetation based on the plant ecology.

As noted Cornet (2000-2002) plant diversity in circum-Saharan zone presents original flora. The peculiarities of such floras reside in the existence of original genetic resources and specific habitats, resulting from process of adaptation and evolution in response to the increasing aridity and a former anthropogenic pressure.

To ensure the maximum quantities and the quality of renewable resources, it is necessary to learn to use them sustainably in particular taking in to account speed healing of ecosystems and maintaining the capacity of resilience.

Materials and methods

Study area

The Ain Skhouna study area is located on the high plains Oranaises. It is located 90 Km South-East of the Wilaya of Saïda and 530 Km to the south-West of Algiers. Administratively, it is located in the Wilaya of Saïda, Daïra of Hassasna. It extends over an area of 404,40 Km² (15% Sebkha).

The commune of Ain Skhouna is limited to the North and West by the municipality of El Maamoura Beach, to the East and to the North by the Wilaya of Tiaret, and on the South by the Wilaya of El Bayadh.

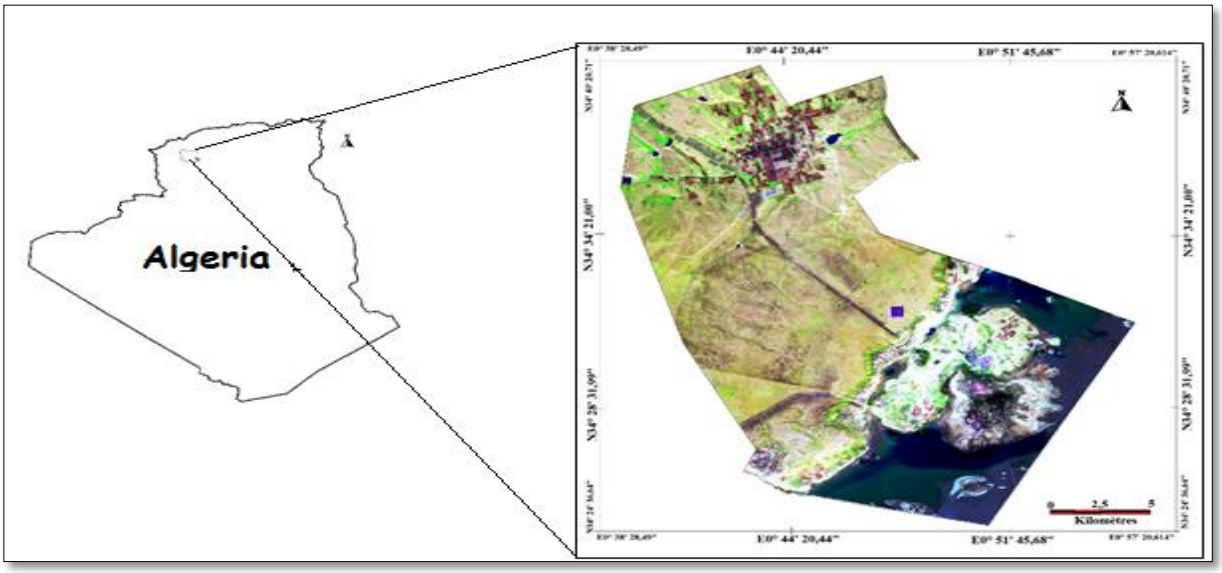

Fig. 1. Location of the study area.

Following the recognition of the land, a sampling plan is essential to establish in order to allow the realization of floristic inventory in the area of Ain Skhouna.

Methodology

We thought that the method of Braun-Blanquet (1951), is the most appropriate to better control the floristic cortege and the objectives of the study. It allows a comprehensive study of the vegetation and its bio-geographical distribution using the survey technique based on abundance dominance.

Optimization

To give a more accurate picture of the actual vegetation and to better quantify vegetation, each species is then assigned a coefficient of abundance dominance based on the scale of Braun-Blanquet, reflecting the conditions of its existence in the surveys. In this regard, Godron (1971) adds that to control the representation of sample surveys, the most common procedure is the curve "area species". Lemee (1967) defines a minimum as area being the smallest area needed for that most species are represented.

Result and discussion

Composition systematics

Families, genera and species

The family and the kind of all species are determined by using the new flora of Algeria 1962-1963.At the level of the study area, the gene rare presented are variable, the distribution of families is heterogeneous. The Asteraceae family, the Amarantaceae, the Lamiaceae and Poaceae dominate the study area; these families represent more than 36% of the studied flora. Other families have allow percentage to very low and which are typically mono generics and sometimes mono-specific. So that in arid zone and in the Sahara, most of the families are represented by one or two genera, and most kinds by only one or two species. This richness may be explained by drastic climatic conditions and practice of agriculture and livestock.

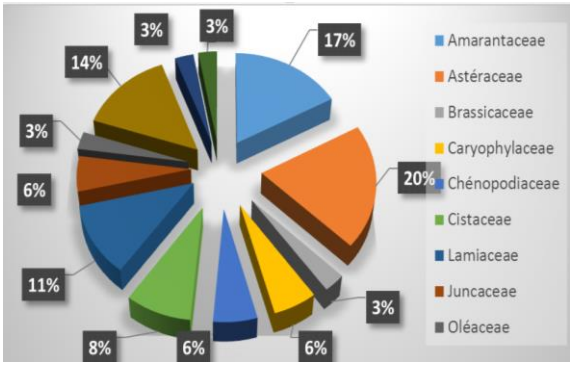

Fig. 2. Families, genera and species composition.

Biological characterization

Forms of life of plants represent a tool for description of physiognomy and structure of the vegetation. They are considered as an expression of the coping strategy of flora and vegetation to environmental conditions. The biological types or forms of the species express the form by plants in an environment without taking account of their systematic belonging. They translate biology and a certain adaptation to the environment according to Barry (1988).

Biological types by their distribution, faith fully reflect the ecological conditions of a region.

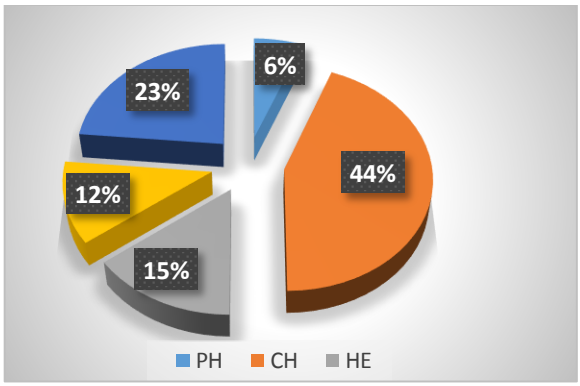

Fig. 4. Percentage of biological types.

The study area is marked by a high percentage of chamaephytes, 44%. then come the therophytes with 23%. Geophytes and the hemicryptophytes are poorly represented with only 15% and 12%. Finally the phanerophytes are the least represented, overall 6%, reflect the State of the environment under the action of ecological and especially anthropozoiques.

Morphological Types

Gadrat (1999), Romane (1987), in Dahmani (1997) highlight the existence a good correlation between biological types and many characters morphological.

The form of the plant is one of the basic criteria for the classification of biological species. Biomass is composed of woody, perennial, annual and herbaceous species.

Our research has revealed the dominance of herbaceous species (77%) species woody. This is justified by the fact that this vegetation is very subject to human pressure. On the other hand, there is that perennial grasses dominate the annual weeds.

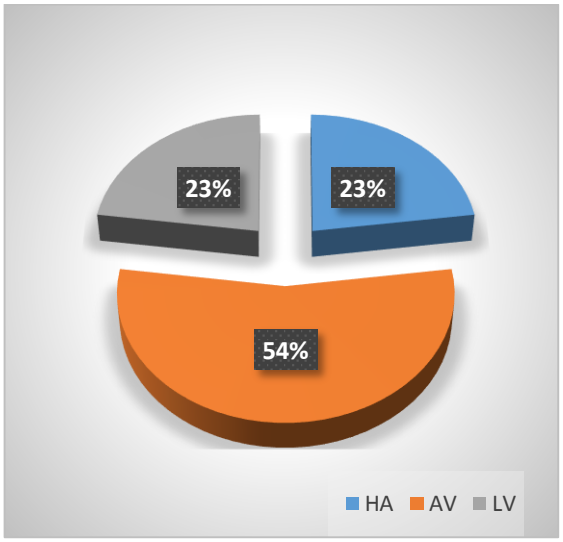

Fig. 5. Percentage of morphological types.

Biogeographical types

Biogeographical spectrum, based on the overall floristic list of the territory, highlights the various elements and to study the distribution of the species we have based on the information provided by the new flora of Algeria (1962-1963).

Chorology perspective, the percentage of taxa in Mediterranean distribution is quite high, 19% of the total. Taxa of cosmopolitan origin and Mauritanian ibero, occupy a significant place in the study area, respectively are 16% and 13% of the total workforce.

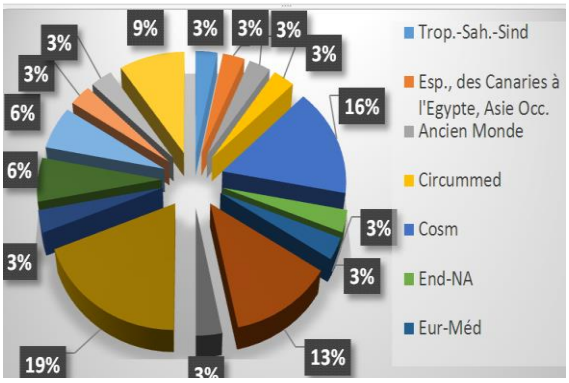

Fig. 6. Distribution of biogeographictypes.

Conclusion

The floristic richness of Ain Skhouna returns to the Asteraceae family, the Amarantaceaes, the Lamiaceae and Poaceae recognized by their resistance to the rigours of ecological conditions. Biogeographical distribution shows the dominance of the Mediterr-anean element (19%), then those of cosmopolitan with 16%. The chamaephytiques and the therophyte present the highest rate, reflecting a strong anthropic action, this chamaephytisation has caused the phenomenon of dessicated Orshan*et al.*, (1984) and Floret *et al.* (1990), they adapt better to summer drought and strong light illumination according to Danin and Orshan, (1990), so that the therophytisation is a strategy of adaptation against unfavorable conditions and a form of resistance to the climatic rigors according to Negro (1966) and Daget (1980).

The general outline of the biological type, in stations, is: Ch> Th > He > Ge>Ph, Report that the risk of an aggravation of the impoverishment of the floristic heritage of our region is real. Changes occur then in response to these stress and disturbance, resulting in a differentiation of the structure and the functioning of ecosystems. Given the role of biological diversity in the resilience of ecosystems and the fact that they will have to adapt to climate change, the current generations have the duty to preserve local biological diversity and encourage flora and fauna adaptations to drier conditions in order to facilitate future developments. To promote conservation in situ of biological diversity, it is necessary to maintain a sufficient density of protected areas ecosystems and various biotopes (national parks, Nature Reserves).

Land degradation causes an overall amendment of the biocenos is with its biotope, these changes thus impact on biodiversity and the functional processes of the plant and thus on the resilience of ecological systems.

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