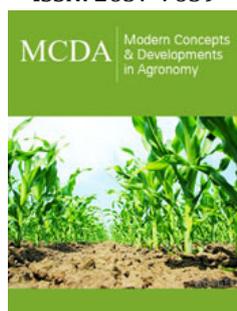


Study of Plant Biodiversity in the Sheikh Badr Region of Tartous Governorate, Syria

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Abstract

The Syrian Arab Republic is characterized by great geographic, climatic and environmental differences. It has high mountains, plateaus and plains, as well as valleys and wetlands. The study was conducted in the villages of the Sheikh Badr region of Tartous Governorate, which is 35km away from the center of the governorate, during the period between February 2023 and May 2023. The research centered on the villages of bromana almsheikh (Alsawrani-Mujabar-Jubat Mujabar-Alzaefaraniu) with the aim of listing the most common wild plants in the region. The results showed that 27 plant species belonging to 16 plant families were identified, of which 20 are common and 5 are rare. In addition to the existence of two species: *Triticum monococcum*- *Origanum syriacum* threatened with extinction. The results indicated that the Sheikh Badr region was characterized by an important plant biodiversity, enriched with multiple plant species with various benefits (medical, pastoral, nutritional). Also, the presence of some plant species distinguishes this region only, such as *Micromeria*.

Keywords: Biodiversity; Plant; Region; Syria; Wild species

Introduction

Food security is closely related to biodiversity, as genetic diversity, specific richness, diversity of ecosystems, and reliance on local genetic resources increase environmental resilience and tolerate biotic and abiotic stresses, thus establishing more stable agricultural and environmental systems [1]. Syria is one of the countries rich in biodiversity and distinguished by it, due to the variation in climate and topography. It extends from the coast, which is characterized by a Mediterranean climate, where marine life lives in the Mediterranean basin, to the coastal and inland mountains, to the interior regions, including plains, mountains, and the desert, each with its own fauna and flora. The Syrian natural flora includes approximately 3,300 species belonging to 900 genera and 130 species. Therefore, the Syrian flora is one of the floras that are rich in various plant species [2].

Climate change, biotic and abiotic stresses, human activities, fires and wars have led to the disappearance of some plant species from their natural habitats. Wild relatives, with their genetic background, contribute to expanding the genetic base of different cultivars, and thus there are great possibilities for developing new cultivars with a genetic background more suitable for different agricultural systems using the ancestral gene pool [3]. Wild species are described as the critical resources required to maintain the global food supply [4]. Thus, one of the worthwhile strategies to increase crop productivity and stability and achieve food security for the expected population increase in 2050 that can be applied in a wide range of environments is the introduction of genes and alleles from wild relatives into domestic or modern cultivars [5]. In addition, local knowledge, culture, and customs inherited from ancestors hundreds of years ago contribute to the continuity of use and permanent utilization of genetic resources to show the quality and importance of these resources and the nutritional

values they provide to local communities, given the importance of this biological diversity at the environmental and economic levels [2]. Therefore, the research aims to identify wild plant species and enhance knowledge of plant biodiversity in the region, which has economic, nutritional and medical importance.

Materials and Methods

Study location and climate

The study was carried out in the villages of the Sheikh Badr region of Tartous Governorate, which is 35km away from the center of the province. The area is concentrated in the northeast to maintain an altitude of (500-750m) and follows the first stabilization zone, as the annual rainfall rate is (1425.3mm). The temperature in summer is between (25-38) °c and in winter between (0-25) °c.

Collecting plant samples

Periodic tours were carried out to monitor existing plants between February and May 2023 to determine the presence and spread of wild plant species, collect plant samples, record all necessary information, and then dry and preserve them.

Table 1: Families and species present in study region.

Number	Families	Species	Number	Families	Species
1	poaceae	<i>Hordeum spontaneum</i>	6	Fabaceae	<i>Lathyrus sativus</i>
		<i>Triticum monococcum</i>			<i>Vicia norobonesis</i>
		<i>Cynodon</i>	7		Lamiaceae
		<i>Sorghum sudanese</i>		<i>Origanum syriacum</i>	
		<i>Avena sativa</i>	8	Apiaceae	<i>Micromeria</i>
2	Asteraceae	<i>Echinops ritro</i>	9	Areaceae	<i>Ammi majus</i>
		<i>Tragopogon porrifolius</i>	10	Convolvulaceae	<i>Arum palaestinum</i>
		<i>Santolina chamaecyparissus</i>	11	Primulaceae	<i>Convolvulus arvensis</i>
		<i>Pullen spinosa</i>	12	Iridaceae	<i>Cyclamen halcpensis</i>
3	Urticaceae	<i>Urtica dioica</i>	13	Boraginaceae	<i>Crocus sativus</i>
		<i>Paretaria judaica</i>	14	Asphodelaceae	<i>Heliotropium hisutissimum</i>
4	Orobanchaceae	<i>Orobanche cernua</i>	15	Pavaveraceae	<i>Asphodelus ramosus</i>
5	Eupobiaceae	<i>Euphorbia hierosolymitana</i>	16	Brassicaceae	<i>Papaver rhoeas</i>
					<i>Capparis spinosa</i>

Conclusion

The biodiversity in the region was very important which can be used to improve field groups. The study recommended that environmental education equip learners to face environmental challenges. Also, Keep and restore biodiversity and natural resources via sustainable management. In addition, employ the medicinal importance of available plants in the health field.

References

1. Pour AA, Kianersi F, Poczai P, Moradkhani H (2021) Potential of wild relatives of wheat: Ideal genetic resources for future breeding programs. *Agronomy* 11(8): 1656.
2. (2016) National report on the biological diversity of genetic resources for food and agriculture in the Syrian Arab Republic.
3. Glaszmann JC, Kilian B, Upadhyaya HD, Varshney RK (2010) Accessing genetic diversity for crop improvement. *Curr Opin Plant Biol* 13(2): 167-173.
4. Redden R (2013) New Approaches for crop genetic adaptation to the abiotic stresses predicted with climate change. *Agronomy* 3(2): 419-432.
5. Nevo E, Chen G (2010) Drought and salt tolerances in wild relatives for wheat and barley improvement. *Plant Cell Environ* 33(4): 670-685.
6. Atlas of Syria Biodiversity (2002) The Ministry of State for Environment Affairs. Damascus, Syria.
7. Atlas of Medicinal and Aromatic Plants in the Arab World (2012).

Classification of wild plant species recorded in the study area

The genera and species of wild plants spread in the study area were identified based on the morphology, taxonomic keys, flora and atlases available [6,7].

Result and Discussion

The botanical description of the plant species available in the study area was studied according to Table 1, and 27 plant species belonging to 16 plant families were identified, of which 20 are common and 5 are rare *Arum palaestinum- Crocus sativus- Paretaria judaica- Santolina chamaecyparissus- Capparis spinosa*. In addition, the existence of two species: *Triticum monococcum- Origanum syriacum* threatened with extinction. The results indicated that the Sheikh Badr region was characterized by an important plant biodiversity, enriched with multiple plant species with various benefits (medical, pastoral, nutritional). Also, the existence of some plant species considered characteristic to this region only, such as *Micromeria*. This region was also characterized by plants considered gene banks such as (wild wheat, barley and oats).