Article

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Eclipta prostrata (*Asteraceae*), a new alien species in the Algerian flora

Abstract

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Different floristic surveys in Algeria led to the discovery of xenophytes. *Eclipta prostrata* (*Asteraceae*) is a new one and was recently discovered in Algiers beach, Zemmouri El Bahri. A brief description of its location and ecology are provided. This information completes the recent records in Tunisia and Morocco and confirms that E. prostrata is widespread throughout most of North Africa.

Key words: xenophytes, alien flora, floristic survey, North Africa.

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Introduction

Human impact on biodiversity, direct or indirect, involves four basic factors: 1) overexploitation of natural resources; 2) habitat modification, conversion, and fragmentation; 3) the introduction of exotic (Non-native) species; and (4) pollution. Among these threats, the exotic species are considered here. Non-native species were formerly defined as species outside of their bioregion which can possibly threaten native ones (De Candolle 1855). In the 1950s, scientists considered that biological invasions can have a deleterious effect on habitats and ecosystems (Macdonald & Jarman 1984; Davis 2009; Gentili & al. 2021). The increasing world trade led to increasing various transport ways and organism disseminations, especially propagules and plant seeds. Alien invasive species cause changes in the ecosystems to which they are introduced, but their impacts on ecosystems and biodiversity are not clearly understood (Larson & al. 2013; Simberloff & al. 2013). Alien species are not always invasives, but they could anyway threaten ecosystems (Ricciardi & al. 2007; Jeschke & al. 2013). In the Mediterranean countries, several records of naturalization and introduced species were observed, favored by intense maritime activity in the Mediterranean Sea (Campos & al. 2004; Bresch & al. 2013; El Mokni & Iamonico 2018;

Fortic & al. 2023; Galasso & al. 2024). The same applies to Algeria where several exotic plants have been reported in the last decade along the coasts (Meddour & El Mokni 2016; Sakhraoui & al. 2019). A new alien species, *Eclipta prostrata* (L.) L., was recently discovered in the North coast of Algeria (Zemmouri Beach). It has been recently observed by El Mokni and Iamonico in Tunisia (2018) as part of ongoing research on invasive plants in the region (El Mokni & al. 2013, 2018).

Eclipta L. is a small genus of 11 species native to Asia and North America (WFO 2022).

Materials and methods

Eclipta prostrata (Fig. 1) was discovered during a botanical field trip organized on September 13, 2023 by the "Jardin d'essai" most important botanical garden in Algeria with its own researchers and those from the National Mediterranean Botanical Conservatory of Porquerolles and from the University of Sciences and Technology Houari

Fig. 1. *Eclipta prostrata*. 1) habitus, 2) peduncles hairiness 3) Leaves 4) different stages of flowers with black and glabrous mature achenes in the older flower 5) peduncles (photos by A. Hirche, Driss A, Ait Ikhlef R). Zemmouri Beach, Algiers, 17 September 2023.

Boumediene (USTHB) about harvesting the seeds of littoral plants. The plant was found in a partially stagnant water. Consultations were conducted on the main flora of Algeria (Maire 1958; Quézel & Santa 1962; Dobignard & Chatelain 2011) and the key Algerian herbaria (Herbarium of INA, URZA) and LEVE, and by remote examination of Herbarium specimens of the Royal Botanic Gardens, Kew (K), (K000895510), the Open Herbarium (Open Vascular Plant Herbarium Network), and of the Muséum National d'Histoire Naturelle – MNHN (P). Herbaria acronyms are according to Thiers (2018). The species is not still reported for the Algerian flora. Recent discovery introductions in neighboring countries (El Mokni & Iamonico, 2018) confirmed and facilitated its identification.

Results and discussion

Habitat and ecological notes

Eclipta prostrata was found in a pond inside a branch of the Zemmouri wadi, a few hundred meters away from the beach of Zemmouri El Bahri located at the east of Algiers. The location is at 36.810408° Northern Latitude, 3.5981733 East Longitude. The elevation is about 5 m above sea level. Zemmouri wadi is one of the rare unpolluted wadis in the Algiers region. The population of *E. prostrata* found below a raised dune, along the beach and consisted of approximately 4 to 8 tufts of plants with 60 cm to 1 m in diameter.

Phenology

Flowering and fruiting times in Algeria, are between June and November.

Notes on vegetation

Eclipta prostrata was found in a wadi (river) in September with aquatic and herbaceous communities (see Table 1).

Table 1. Floristic composition of the relevé (sample) whith *Eclipta prostrata*. The alien status (3rd column) follows the Greuter (2006+) and Le Floc'h & al. (2010). The nomenclature follows Dobignard & Chatelain (2011).
Abbreviations. 2st column: Ch = chamaephyte, G = geophyte, H = hemicryptophyte, Hyd= Hydrophyte, Hel: Helophyte, P = phanaerophyte, T = therophyte; 3rd column: NTV =Native; NAT = Naturalized; 4rd column: (+): Levels of Frequency.

Plant names	Life forms	Status	Levels of Frequency
Ephedra fragilis Desf.	P	NTV	+
Cakile maritima Scop.	T	NTV	++
Euphorbia peplis L.	T	NTV	+
Eryngium ilicifolium Lam.	T	NTV	+
Ammophila arenaria (L.) Link	G	NTV	++
Pancratium maritimum L.	G	NTV	++

Table 1. continued.

Tamarix gallica L.	P	NTV	
Pistacia lentiscus L.	P	NTV	
Lotus creticus L.	Ch	NTV	
Xanthium strumarium L.	T	NTV	+++
Salsola kali L.	T	NTV	++++
Crucianella hirta Pomel	Ch	NTV	++
Rumex palustris Sm.	T	NTV	
Persicaria lapathifolia (L.) Delarbre	T, Hyd	NTV	
Arundo donax L.	G	NAT	
Typha elephantina Roxb.	G	NTV	
Solanum nigrum L.	T	NTV	
Tamarix gallica L.	P	NTV	
Dysphania ambrosioides (L.) Mosyakin & Clemants	T	NAT	
Lythrum salicaria L.	H, Hel	NTV	
Eclipta prostrata(L.) L.	T	NAT	

Discussion and Conclusion

According to Caillon (2020) this hygrophilous and heliophilous species is found in a wide variety of habitats. It favors wetlands, sometimes strongly ruderalized, such as irrigated crops (weeds of rice fields), temporarily exposed banks of lakes, canals and rivers, however, the only observation at the moment in Algeria is in its typical biotope, a humid area (pound) but close to an agricultural area. This could explain why El Mokni & Iamonico (2018) had discovered this species generally on ruderal sites, assuming they are more or less humid.

Eclipta prostrata has been discovered in major part of the World and in Africa (POWO 2024). There was a gap in North Africa, particularly in Algeria, Tunisia and Libya. It has been found in Tunisia in 2011, now in Algeria (2023) and it probably would be found soon in Libya.

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