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Nota corta

Cotula australis, a new alien species for the flora of Morocco and continental North Africa

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Abstract

Cotula australis (Sieber ex Spreng.) Hook. f., an Australasian species already introduced and expanding in many countries of the world, has been collected for the first time in Morocco and continental North Africa. Its ecology, distribution and status are discussed.

Key words: alien flora, chorology, *Cotula*, North Africa.

Résumé

Cotula australis, *une nouvelle espèce exotique pour la flore du Maroc et de l'Afrique du Nord continentale*
Cotula australis (Sieber ex Spreng.) Hook. f., une espèce originaire d'Australasie déjà introduite et en expansion dans beaucoup de pays du monde, a été collectée pour la première fois au Maroc et en Afrique du Nord. Son écologie, sa répartition et son statut sont discutés.

Mots-clés : flore exotique, chorologie, *Cotula*, Afrique du nord.

According to Dobignard & Chatelain (2013), c. 2.3% of plant taxa present in Morocco are introduced and/or naturalized. Since the publication of this synthesis, further introduced taxa have been reported (e.g. Homrani Bakali & Peltier, 2020; Khamar *et al*., 2021, 2022; Sukhorukov *et al*., 2023), and this trend is expected to continue. Indeed, the significant expansion of economic activities (e.g. urbanisation and infrastructure development) along the Moroccan coastline, especially between the cities of Tangier and Casablanca, has created highly suitable conditions for the introduction of alien species. This situation in Morocco can be seen as part of a global pattern of increasing prevalence of alien plant species (Seebens *et al*., 2021).

Observations of plants made in 2018 and 2019 in the Maâmora forest, close to the cities of Salé and Kénitra (Atlantic plains of north Morocco), have permitted the discovery of a new alien species for the flora of the country: *Cotula australis* (Sieber ex Spreng.) Hook. f. (Asteraceae), a species originating from Australia and New Zealand (Thompson, 2007). This is also the first report of this species in continental North Africa.

MOROCCO: Salé, Larb'a as Sehoul, 34.02946 / -6.67006, Grassland under *Quercus suber* forest, 140 m a.s.l., 10.04.2018, *M. Chambouleyron* s.n. (CHAMB); Kénitra, 34.12802 / -6.58606, Temporary pond, 90 m a.s.l., 28.04.2019, *M. Chambouleyron* s.n. (RAB114131) (Figure 1).

Cotula L. is a genus of c. 55 species, mainly distributed in the Southern Hemisphere, with some species naturalized in the Northern Hemisphere (Powel *et al*., 2014). Leaf shape, outer florets disposition, and achenes ornamentation are important identification criteria.

Figure 1. *Cotula australis* in a temporary pond (Maâmora forest, 28.04.2019).
Figure 1. Cotula australis *dans une mare temporaire (forêt de la Maâmora, 28.04.2019)*.

Among the species morphologically close to *C. australis*, and those already known in North Africa and Western Europe, *C. autralis* can be distinguished by the following criteria:

- from *C. anthemoides* L. (a rare, but native, paleotropical species, occurring in the Moroccan Sahara) by its outer florets without corolla (*vs*. with corolla), with smaller peduncles (0.5-1.3 cm) (Benedí, 2019),
- from *C. coronopifolia* L. and *C. bipinnata* Thunb. (two south African species, the first one also present along the Atlantic coastline of Morocco) by its achenes of outer florets in

several series, papillose on both faces (*vs*. in 1 series or undeveloped, papillose only on inner face) (Thompson, 2007).

Originating from Australasia, *C. australis* is a weed introduced in Africa, North America, South America, Asia and Europe (Thompson, 2007). It is already known from areas adjacent to Morocco, such as the Canary Islands and Iberian Peninsula (Dobignard & Chatelain, 2011; Benedí, 2019). However, according to our literature review, this species has never been previously recorded in continental North Africa (Dobignard & Chatelain, 2011; Ibn Tattou, 2014; Seebens *et al*., 2017; Dobignard, 2023; African Plant Database, 2023; Global Biodiversity Information Facility, 2023).

Figure 2. Dehesa type Oak forest, habitat of *Cotula australis* in the Maâmora forest (Larb'a as Sehoul, 18.05.2023).

Figure 2. *Subéraie de type Dehesa, habitat de* Cotula australis *dans la forêt de la Maâmora (Larb'a as Sehoul, 18.05.2023).*

Our field observations were made in the Casablanca-Kenitra Region corresponding to "Maâmora/Zemmour/Zaër" (Man-3) geographical unit (as delimited by Fennane & Ibn Tattou, 2005). In its origin countries, it grows in moist conditions (including in urban environments) (Thompson, 2007). In France and Spain where it has been introduced, it is found in urban environments and also in disturbed grasslands, on sandy or sandy-clay soils (Tison & De Foucault, 2014; Benedí, 2019). In Morocco it was found growing in overgrazed *Quercus suber* L. forests without shrub layer (dehesa type) (Figure 2) and temporary ponds inside these forests, on sandy soil. With several square meters colonized on both stations, the species seems well established here, and we consider it as a naturalized plant in Morocco (holoagriophyte, according to Kornaś 1990), probably more widespread in the Maâmora forest than the two stations where it was observed. As the species distribution is expanding in Spain (Benedí, 2019) and France (J.-M. Tison, com. or.), its eventual expansion must also be surveyed in Morocco.

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