

## *Rumex chalepensis* (Polygonaceae), a new species for Morocco and Africa

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**Abstract.** The Irano-Turanian *Rumex chalepensis* has been recorded in two localities in Morocco since 2013, apparently for the first time in Africa and rather disjunct from the species' known distribution range. Populations were found in eastern Morocco: one close to the city of Midelt (High Moulouya valley), in the high plains between the Middle Atlas and High Atlas mountain ranges, whereas the second is located close to the city of Jerada (Lower Moulouya valley / High plateaus), close to the border with Algeria. This species is morphologically similar to *R. obtusifolius* and might have been overlooked elsewhere in North Africa. The presence of the latter in Morocco, always assumed to be very questionable up to present, is also confirmed here. Distinguishing features for these two species are discussed, some illustrations are also presented and *R. chalepensis* is lectotypified. It is most likely a naturalized weed in Morocco although it cannot be completely ruled out that it is a previously overlooked native species with two disjunct areas, an Irano-Turanian and North African one.

**Keywords.** *Rumex*, North Africa, alien flora, typification.

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### Introduction

*Rumex* L. (Polygonaceae Juss.) is an almost cosmopolitan genus of ca. 200 species. Recent molecular studies seem to favor a slightly expanded circumscription of the genus, with *Emex* Campd. included in it (Schuster *et al.*, 2015). With approximately 47 known species (26 of them endemic) the genus was considered to be relatively poorly represented in Africa for quite a long time (Rechinger, 1954). According to more recent sources the actual number of taxa in continental North Africa (i.e. Macaronesian islands excluded) is 70 (African Plant Database, 2020).

The genus *Rumex* is critical from a taxonomic point of view due to its high phenotypic variability which has resulted in the current nomenclatural disorder, misapplication of names, and species being overlooked or neglected (see e.g., Raycheva, 2009; Raycheva *et al.*, 2013; Verloove, 2013). Several species of this genus are weeds of cultivated fields or are used for various purposes, mostly as vegetables, a few also as ornamentals (for an overview of weedy species see Randall, 2017).

During the course of a botanical inventory of eastern Morocco, led by the Emirates Center for Wildlife Propagation (ECWP), two populations of *Rumex* were collected. They showed morphological characteristics, which did not match those of any other known *Rumex* in North Africa, although plants were quite similar to *R. obtusifolius* L. After closer examination, they turned

out to refer to the Irano-Turanian *R. chalepensis* Mill., a species that has not yet been reported from Africa.

### Materials and methods

This work is based on field surveys, analysis of relevant literature, and examination of physical herbarium specimens preserved at BR, ECWP, G, and RAB (acronyms according to Thiers, 2019). Several additional herbaria were also consulted online (e.g. B, K, KUFS, L, MPU, P, WU). Specimens of *Rumex* that were collected by the authors that are relevant for this study were deposited in ECWP.

### Results and Discussion

#### Taxonomic treatment and comments

*Rumex chalepensis* Mill., Gard. Dict. (ed. 8) n° 11. 1768.  
= *Rumex syriacus* Meisn., Prodr. 14: 53. 1856.  
= *Rumex dictyocarpus* Boiss. & Buhse, Nouv. Mém. Soc. Imp. Naturalistes Moscou 12: 192. 1860.  
= *Rumex drobovii* Korovin, Opred. Rast. Okr. Taschkent 84, 154. 1924.  
= *Rumex turkestanicus* Paulsen, Bot. Tidsskr. 29: 154. 1909.  
= *Rumex denticulatus* Koch, Linnaea 22: 208. 1840, nom. illegit. (non Campd., Monogr. Rumex 143. 1819).

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Figure 1. Herbarium specimen of *Rumex chalepensis* from Morocco (herb. ECWP s.n.).

In the protologue of *R. chalepensis* (written “*chalepensus*” in the protologue, but “*chalepensis*” in the index), Miller (1768) did not refer to any specimen. A specimen preserved in BM (BM000810110), collected in 1729 from a cultivated individual that apparently originated from Aleppo, Syria, was identified by K.H. Rechinger in 1947 as *R. chalepensis* (*determinavit* signed by K.H. Rechinger). It bears a label ‘Type Specimen’. An image is available at: [http://data.nhm.](http://data.nhm.ac.uk/object/d2510afc-bccc-45fb-bcab-362799338185)

[ac.uk/object/d2510afc-bccc-45fb-bcab-362799338185](http://data.nhm.ac.uk/object/d2510afc-bccc-45fb-bcab-362799338185). Since the specimen is annotated with ‘Hort. Chels. 1729’ (Philip Miller was superintendent at the Chelsea Garden and his herbarium was, after his death, transferred to the general herbarium at BM; Stafleu & Cowan, 1981) it doubtlessly was at Miller’s disposal when he described *R. chalepensis* in 1768 and thus can be considered as original material. The specimen BM000810110 is here designated as the lectotype of that name.

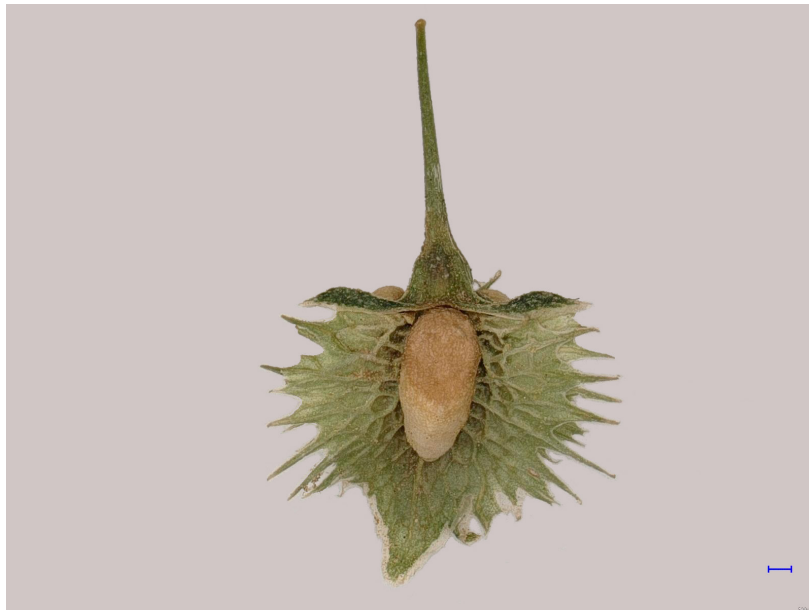


Figure 2. Detail of fruiting valves of *Rumex chalepensis*. Characteristic are the three well-developed tubercles, four or more teeth on either side of the valve, the broadly rounded outline of the valves, their distinct venation and the dilated pedicel just below apex.

## Description

This morphological description is entirely based on specimens from Morocco. Perennial. Stem erect, up to 120 cm high, branched in the upper half; branches arcuate-divaricate, forming a broad open panicle. Basal leaves 2–3 times longer than broad, up to 20 cm long, ovate-oblong or ovate with cordate base, acute or subacute apex; petiole shorter than lamina, abaxially glabrous on the veins (not sparsely minutely papillate); lower stem leaves with slightly cordate base, ovate-lanceolate, acute; upper stem leaves gradually smaller and narrower, acute, with short petiole; all leaves flat or nearly so. Inflorescence with numerous whorls, all  $\pm$  remote. Pedicels thin, articulate below the middle (ca. 1/3 from base), slightly longer or up to twice as long as the valves, distinctly dilated to swollen at apex. External perianth segments ca. 1.5 mm long. Valves ca. 5  $\times$  5 mm, (rotund-) cordate, with  $\pm$  acute to rounded tip, distinctly regularly reticulate with very thick veins forming  $\pm$  isodiametric cells, with 4–9 unequal teeth near the base; teeth ca. 0.5–1(–1.5) mm long (less than 1/2 the width of the tepals); all valves with a well-developed, smooth tubercle. Nut ca. 3 mm long, brown, broadest  $\pm$  slightly below the middle (Figures 1, 2).

The plants found in eastern Morocco were initially thought to be a variant of *Rumex obtusifolius* [cfr. *R. obtusifolius* subsp. *transiens* (Simonk.) Rech. f.], based on the valves with three well-developed tubercles; in subsp. *obtusifolius* often only one or two tubercles are well-developed. According to Maire (1961), *R. obtusifolius* is very rare in North Africa and the identity of plants identified as such long remained tentative and speculative. The presence of *R. obtusifolius* in North Africa was reported on several occasions (Maire, 1961; Ouyahya, 1999; Dobignard & Chatelain, 2013; African Plant Database, 2020), at least from Algeria

and Morocco. The species is reportedly known from the Canary Islands and Madeira (Macaronesia) as well (Hohenester & Welss, 1993). However, in his revision of the genus for Africa, Rechinger (1954) did not cite any specimen from North Africa, nor did he indicate that this species would occur there. Herbarium specimens of *R. obtusifolius* from North Africa, which are apparently very sparse, are in need of critical revision since some of them might refer to *R. chalepensis* instead. However, we here confirm the genuine presence of *R. obtusifolius* in Morocco, where we collected it in three localities near the cities of Midelt and Taourirt (eastern Morocco) in irrigated fields (specimens preserved in ECWP; see below for details, Figure 3A, B). In RAB, the largest herbarium in Morocco and one of the most important in North Africa, we did not find further specimens. However, *R. obtusifolius* was recently reported for the first time from Tunisia as well (El Mokni & Verloove, 2019).

The most notable differences between *Rumex chalepensis* and *R. obtusifolius* are summarized in Table 1 (based on a thorough examination of relevant herbarium specimens and review of numerous literature references, especially Rechinger, 1930, 1932, 1949, 1954, 1968; Mouterde, 1966; Cullen, 1967; Lozinskaya, 1970; Qaiser, 2001; Edmondson & Akeroyd, 2016; Kanwal *et al.*, 2016). These two species were often confused in the past and sometimes even considered, probably erroneously so, to be conspecific (e.g. Rechinger, 1930, 1949).

Another somewhat similar species is the Eurasian *Rumex stenophyllus* Ledeb. It also has distinctly toothed valves with three well-developed tubercles. However, its leaves are much narrower (ca. 4–6  $\times$  as long as wide), often with slightly wavy margins (comparable with those of *R. crispus* L.) and cuneate (not cordate) at the base. The resemblance between this species and *R. chalepensis* was already noted by Boissier (Rechinger, 1930).



Figure 3. *Rumex obtusifolius* from Morocco (Taourirt, 17 June 2019); A, detail of infructescence with valves longer than wide; B, papillose abaxial side of the leaves. (Photos M. Chambouleyron).

Table 1. Differential diagnostic characters between *Rumex chalepensis* and *R. obtusifolius*.

<i>R. chalepensis</i>	<i>R. obtusifolius</i>
All valves with a smooth, well-developed tubercle.	Tubercles often unequally developed or only one or two present.
Valves with 4 or more teeth on each side.	Valves with up to 4 teeth on each side.
Valves broadly rounded-cordate in outline (about as long as wide) with a very prominent pattern of $\pm$ isodiametric veins that covers most of the valve surface.	Valves distinctly longer than wide, veined but less prominently so.
Pedicel conspicuously dilated (almost swollen) at apex, just below the valves.	Pedicel at most slightly expanded just below valves.
Basal leaves ca. 2–3 $\times$ as long as wide, with abaxial surface smooth.	Basal leaves 2 $\times$ as long as wide, with abaxial surface usually minutely papillose on the veins, especially near base.
Achene ca. 3 mm long or slightly longer.	Achene ca. 2.3–2.6 mm long.

### Habitat, ecology and distribution

According to Rechinger (1949), *Rumex chalepensis* is a common species “in warm and dry areas” in Asia. Other authors consider it grows in moist places. According to Lozinskaya (1970), it occurs “in the subalpine zone of mountains, on gravelly and damp slopes, and along riverbanks”, in the former U.S.S.R. (as *R. syriacus*). Mouterde (1966) says it grows in rather damp places in the Near East. Li *et al.* (2003) indicate “along ditches, moist valleys”, in China. It was reported from cultivated fields in Uzbekistan (Paulsen, 1909; as *R. turkestanicus*). According to Randall (2017), it is a weed of orchards and plantations, including pome fruits, in Pakistan and India (partly as *R. alveolatus*).

In eastern Morocco, *Rumex chalepensis* has a similar ecology: it grows as a weed in irrigated cultivated areas (it was found in olive and apple groves) and is most likely an alien species. It may

have been introduced there a long time ago already, most likely as a seed contaminant. In the locality near Jerada, it is very well established as the population is still present after several years of observations; it is certainly not a casual.

The exact native distribution of *Rumex chalepensis* is somewhat uncertain. It is probably naturally distributed in southwestern Asia (Syria, Lebanon), Armenia, Azerbaijan, Iran, Afghanistan, Pakistan and Central Asia. The rather disjunct occurrence of this predominantly Irano-Turanian element in eastern Asia (see for instance Li *et al.*, 2003) is in need of verification based on more and better specimens (Rechinger, 1949; Qaiser, 2001). Records from India (Kashmir) are considered alien (Khuroo *et al.*, 2007; as *R. alveolatus*, likely a synonym). Its actual presence in Iraq requires confirmation (Edmondson & Akeroyd, 2016). In Turkey, *R. chalepensis* was first recorded as an introduced garden weed in Gaziantep, at an altitude of 800 m (Cullen,

1967). Later on, it was reported from other areas as well, also from more natural steppic habitats (Aydoğdu & Akan, 2005; Özuslu *et al.*, 2005).

### Examined specimens

#### *Rumex chalepensis*

MOROCCO: Midelt, 32.67392/-4.76900, 1490 m asl, apple tree grove (“pommeraie”), 15 May 2013, *M. Chambouleyron* s.n. (ECWP!); Jerada, 34.23979/-2.21717, 890 m asl, olive grove (“oliveraie”), 4 June 2018, *M. Chambouleyron* s.n. (ECWP!).

IRAN: (Persiae austro-orient.): Kerman, in herbosis, 1900 m, 18 August 1892, *J. Bornmüller* 4245 Iter Persico-turcicum 1892–1893 (originally as *R. obtusifolius* var. *agrestis*; identified as *R. chalepensis* by K.H. Rechinger, 1947) (BR!).

#### *Rumex obtusifolius*

MOROCCO: Zaïda, 32.93268/-4.99441, 1620 m, apple tree grove (“pommeraie”), 2 July 2018, *M. Chambouleyron* s.n. (ECWP!); Boumia, 32.60573/-5.01458, 1600 m asl, apple tree grove, 13 June 2018, *M. Chambouleyron* s.n. (ECWP!); Taourirt, 34.33676/-2.75842, 470 m asl, cultivated gardens, 17 June 2019, *M. Chambouleyron* s.n. (ECWP!).

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