

## Notes on the distribution range of *Sedum rubens* L. (Crassulaceae) in continental Portugal

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### Abstract

The natural geographical distribution range of *Sedum rubens* in continental Portugal is reassessed. Based on the *Flora iberica* provinces recognised for the country, the occurrence of the species in Ribatejo is confirmed but it is thus far excluded from Beira Alta.

**Key words:** Beira Alta, chorology, *Flora iberica*, new records, Ribatejo.

### Resumen

*Notas sobre la distribución geográfica de Sedum rubens L. (Crassulaceae) en Portugal continental*

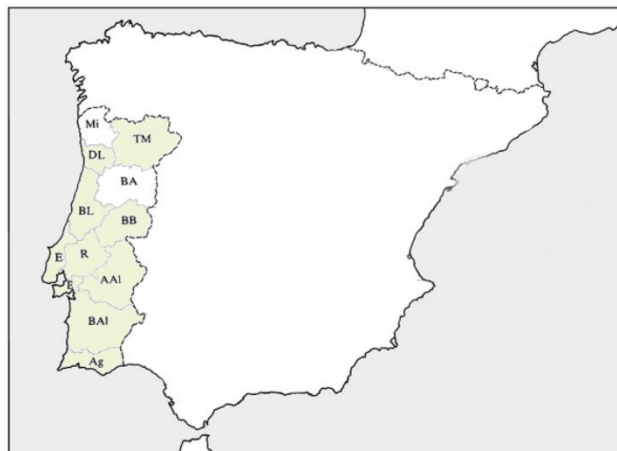
Se reevalúa la distribución geográfica de *Sedum rubens* L. en Portugal continental. Según las provincias de *Flora iberica*, se confirma la presencia de la especie en Ribatejo, pero se excluye, hasta el momento, de Beira Alta.

**Palabras clave:** Beira Alta, corología, *Flora iberica*, nuevas citas, Ribatejo.

In continental Portugal the family Crassulaceae is represented by 37 species, nothospecies, and infraspecific taxa, of which 23 are indigenous and 14 variously naturalised (Smith & Figueiredo, 2013: 77; Smith & Stephenson, 2015). Of the crassuloid genera represented in Portugal, *Sedum* s.l. is the most diverse, with 18 annual and perennial taxa having been recorded for the country. Although several clades in Crassulaceae subfam. Sempervivoideae have been accorded recognition at the rank of genus, such as *Petrosedum* Grulich, Messerschmid *et al.* (2020) recently proposed that an expanded, ‘super’ *Sedum* genus that contains about 750 species might be the most sensible solution to the taxonomy of the group. This view largely coincides with the treatment of *Sedum* made for the *Flora iberica* Project (Castroviejo & Velayos, 1995; Smith, 2015).

*Sedum rubens* L. is an annual species which has an extensive natural geographical distribution range in the Iberian Peninsula and Balearic Islands, as well as further north and east in continental and islandic Europe (Stephenson & Stephenson, 1994: 4–5; Castroviejo & Velayos, 1997: 130; t Hart & Eggl, 2003: 100–101). As *S. rubens* is virtually indistinguishable from *S. mucizonia* (Ortega) Raym.-Hamet, also an annual species, when plants are not

yet in flower (Stephenson, 1993: 439, 2007: 267; Smith *et al.*, 2016), we here clarify the occurrence of *S. rubens* in continental Portugal (Figure 1).



**Figure 1.** Delimitation of provinces in Portugal based on *Flora iberica* (<http://www.floraiberica.es>). The provinces where *Sedum rubens* occurs are in darker shade.

**Figura 1.** Delimitación de las provincias portuguesas según la *Flora iberica* (<http://www.floraiberica.es>). Las provincias donde se encuentra *Sedum rubens* están en un tono más oscuro.

Brotero (1804: 213) was the first to record this species in Portugal indicating that it occurred “near Lisbon and elsewhere in Estremadura, rarely around Coimbra and in the North of Portugal”, a distribution area that reflects its occurrence in the provinces of Beira Litoral and Estremadura established in *Flora iberica*. Still in the 19<sup>th</sup> century, *S. rubens* was found in the Algarve by the French naturalist E. Bourgeau (GBIF, 2021) and in Trás-os-Montes by Mariz (1889). Afterwards, Coutinho (1913: 280, 1939: 335) gave its distribution as restricted to the centre and south of the country, while Sampaio (1947: 373) indicated the occurrence of the species south of the Mondego River. Franco (1971: 253) extended the distribution range of *S. rubens* northwards to the Douro River basin, based on collections made by L.G. Barbosa and F.J. Garcia in Trás-os-Montes and Alto Douro (Mendonça & Vasconcellos, 1962; GBIF, 2021), and also recorded the species from the central and southeastern parts of the country (respectively C and SE, Figure 1 in Franco, 1971; see Stephenson 1991: 16 for a map). The southeastern record was probably based on Fernandes & Fernandes (1948) who made collections in Alto Alentejo. Fernandes (1952) presented a record for the north of Portugal, specifically for the region of Porto in the province of Douro Litoral, and later confirmed the occurrence of *S. rubens* in the north by recording a new location in Trás-os-Montes (Fernandes, 1960). Several collections were given by Malato Beliz *et al.* in Alentejo, including Baixo Alentejo (GBIF, 2021), while for Beira Baixa, apart from the reference in Fernandes (1952), there are recent occurrence references in Cano *et al.* (2007). Lastly, the occurrence of *S. rubens* in the province of Beira Alta was recorded by Castroviejo & Velayos (1997) but without specimen citations. This is likely based on specimens collected by Barbosa and Garcia at Almendra (near túnel de Almendra, Vila Nova de Foz Côa, 29TPF6844, 01-V-1946, LISI 11530/1999) (Mendonça & Vasconcellos, 1962; GBIF, 2021). However, according to the provinces of *Flora iberica*, this municipality belongs to the Trás-os-Montes province, not to Beira Alta (see Anthos, 2021).

Although several places where *S. rubens* has been observed and collected in central Portugal fall in the province of Estremadura, no specimens were cited from the adjacent province of Ribatejo (GBIF, 2021). *Sedum rubens* was recorded for Ribatejo by Smith & Figueiredo (2013: 86) and the occurrence is confirmed here with an herbarium sheet (LISI 32811) and images (Figures 2 and 3) which were taken by one of us (VS) during fieldwork at Serras de Aire e Candeeiros Natural Park, in 2020. Several individuals were detected dispersed on walls and rocks in dry places, which confirms the ecology of the species as noted by Coutinho (1939), a character species of the

class *Tuberarietea guttatae* Rivas Goday & Rivas-Martínez 1963 *nom. mut.* (Costa *et al.*, 2010).



**Figure 2.** *Sedum rubens* growing near Valverde (Ribatejo) in central Portugal. Photo: V. Silva.

**Figura 2.** *Sedum rubens* cerca de Valverde (Ribatejo) en el centro de Portugal. Foto: V. Silva

***Sedum rubens* L.** in Sp. Pl.: 432 (1753)

**PORTUGAL. Ribatejo:** Rio Maior, Alcobertas, Casais Monizes, 39°26'30.1"N 8°53'18.3"W, 325 m, V. Silva & A.P. Paes, 19-V-2020 (LISI 32811).

In addition, observations have been made in the municipalities of Rio Maior, Azambuja, and Coruche of that province, and recorded on the Flora-On portal (Porto *et al.*, 2021).

The distribution of *S. rubens* is now clarified, extending to all Portuguese provinces, with the exception of Minho and Beira Alta, following the delimitation of *Flora iberica*.



**Figure 3.** *Sedum rubens* growing near Casais Monizes (Ribatejo) in central Portugal. Photo: V. Silva.

**Figura 3.** *Sedum rubens* cerca de Casais Monizes (Ribatejo) en el centro de Portugal. Foto: V. Silva.

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