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REDISCOVERY AND PRESENT DISTRIBUTION OF *VALANTIA HISPIDA* L. (FAM. RUBIACEAE) IN THE MALTESE ISLANDS

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ABSTRACT

Valantia hispida L. is an indigenous species presumed extinct from the Maltese islands due to lack of any substantiated records for more than 130 years. The rediscovery of this species is reported. An account of the population found in the South East area of the island of Gozo is given. Morphological differences between *V. hispida* L. and the frequent *V. muralis* L. are illustrated. The taxon *V. muralis* var. *hirsuta* reported from Malta in old literature is discussed.

Keywords: *Valantia hispida*, Mediterranean, Malta, Gozo, flora

INTRODUCTION

Valantia L. is a distinct genus of the *Rubiaceae* L. family created by Linnaeus to accommodate a group of member species with a peculiar and complex inflorescence and fruiting body (the latter often referred to as the fructiferous corpus). Two species of *Valantia* were reported from Malta in old literature. Borg (1927) cites the hairy species *V. hispida* L. (= *V. filiformis* Lojac., non Aiton) and the wall species, *V. muralis* L. (= *V. aculeata* Ten.). Only these 2 species were known from the Central Mediterranean region at that time until the description of new species by Brullo and Baldacci in the third quarter of the 20th cent. (Aiello *et al.*, 1981).

The distribution of *Valantia hispida* is quite broad in the Mediterranean. Tutin *et al.* (1976) gives the following geographic regions: Balearic Islands, Corsica, Crete, France (including Corsica), Greece, Spain, Portugal and Italy (including Sardegna and Sicily). GBIF (2009) also gives the 'non-European' countries of Morocco, Turkey and Israel, while Böer, B. & Chaudhary (1999) have given it as a new record for the United Arab Emirates. According to Conti *et al.* (2005). *V. hispida* is found in the Italian regions of Abruzzi, Apulia, Calabria, Sicily and Sardinia.

Valantia hispida was first recorded in the Maltese island by J.F. Duthie, an English Botanist, who botanized in the Maltese Islands between 1874 and 1875. He found this species close to Ramla l-Hamra, Gozo - a sandy beach backed by sand dunes, and Cominotto - a rocky islet close to the island of Comino (Duthie, 1875). This taxon was later mentioned for the Maltese Islands by Arcangeli (1882). Sommier & Caruana Gatto (1915), never found this species in the wild themselves, but examined and confirmed Herbarium specimens collected by Duthie. They give the taxon "*Vaillantia hispida*" in a list of plants from Cominotto, as a record of Duthie in April 1874. The records of Borg (1927) and Haslam *et al.* (1977) appear to be based on the records of Duthie.

Owing to the fact that *V. hispida* L. has never been recorded again in the last 130 years, Lanfranco (1987) correctly presumed that this species became extinct and stated that the only authenticated record is that of Duthie in 1874.

On the 22nd April of 2008, the author discovered a single *Valantia* plant from the island of Gozo that differed significantly from the frequent *V. muralis*. Principal morphological differences included the numerous, long, robust bristles around the entire fructiferous body, 3 instead of 4 cornules in the fruit and the presence of bristles

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at the lower internodes of the stem. The morphology of the fructiferous body was compared with the 6 *Valantia* taxa given by Aiello *et al.*, (1981):

- V. muralis* L. (pan-mediterranean distribution);
- V. columella* (Ehrenb. ex Boiss.) Baldacci (distribution limited to steppe countries in the C. E. North-Africa) ;
- V. deltoidea* Brullo; (endemic to Rocca Busambra, Sicily)
- V. aprica* (Sibth. & Sm.) Boiss. & Heldr. (endemic to South Balkan, Crete, Greece, Albania);
- V. hispida* L. (pan-mediterranean distribution);
- V. calva* Brullo. (endemic to the Island of Linosa)

The species identified as *V. hispida*, is shown in figure 2. It does not correspond with the newly described *Valantia lanzii* Devesa & Ortega-Olivencia - an endemic to the coastal zone of Granada (southern Spain) which appears to demonstrate characteristics of both *V. muralis* and *V. deltoidea*. (Devesa *et al.*, 2003). Tutin *et al.* (1976) distinguish *V. hispida* from *V. muralis* by longer distance between the lower internodes of the stem in the former species. They specifically state that the internodes of *V. muralis* are spaced up to 12mm while in *V. hispida* the space is up to 25mm. The mature specimens in Gozo had the lower internodes spaced by 12mm-28mm, though it must be noted that this key is not very reliable because *V. muralis* in shaded areas was sometimes observed to have long-spaced internodes as a result of etiolation. Therefore, the most important character which should be used to distinguish *V. muralis* from *V. hispida* lie is the fruiting body. Its features are summarised in Table 1 and are based on the identification key formulated by Aiello *et al.* (1981). Figure 3 illustrates the differences between the two species

Table 1: Main differences in the fruiting body between *V. muralis* L. and *V. hispida* L.

Fruit characteristic	<i>V. muralis</i> L.	<i>V. hispida</i> L.
Number of cornules (tiny horns)	4 (dorsal cornule present)	3 (dorsal cornule absent)
Surface of fruit body (excluding cornules)	Glabrescent	Hispid
Number of mericarps	Usually 1	Usually 2
Length bristles/hairs of cornules	c. 0.5 mm	c. 1.2 -1.5 mm

On another floristic survey on the 13th of May 2008, a larger population of *Valantia hispida* was found a few metres away from the single plant found in April. A few hundreds of specimens were found lying on arid, rather infertile, calcareous soil with many gravel and rock particles (Figure. 1) above the coastal shore of ix-Xatt l-Ahmar, Ghajnsielem, Gozo. This record corresponds to a new locality for this species since old literature cites it from Cominotto and Ramla l-Hamra as mentioned above.

The Hairy *Valantia* population was dominating a patch of ground of 15m x 3m which had not been invaded by the higher ruderal plants in the vicinity. Accompanying plant species were mostly low-growing plants given in Table 2. As soon as competitive vegetation increased towards more fertile soil, no *V. hispida* specimens were present. These were obviously outcompeted by higher plants like *Hedysarum coronarium* L., *Bituminaria bituminosa* (L.) Stirton and the grasses *Bromus madritensis* L. and *Bromus diandrus* Roth. *Valantia muralis* L. was not observed in the area.

Table 2: List of plants accompanying *Valantia hispida* L. at ix-Xatt l-Ahmar, Gozo.

<i>Bromus fasciculatus</i> Presl.	D	<i>Teucrium fruticans</i> L.	R
<i>Convolvulus lineatus</i> L.	D	<i>Bituminaria bituminosa</i> (L.) Stirton	c
<i>Scorpiurus muricatus</i> L.	D	<i>Cynara cardunculus</i> L.	c
<i>Euphorbia exigua</i> L.	D	<i>Reichardia picroides</i> (L.) Roth	c
<i>Medicago littoralis</i> Loiseleur	S	<i>Sonchus oleraceus</i> L.	c
<i>Carlina involucrata</i> Poiret	S	<i>Bromus madritensis</i> L.	c
<i>Atractylis gummifera</i> L.	S	<i>Bromus diandrus</i> Roth	c?
<i>Thymbra capitata</i> (L.) Cavanilles	R	<i>Hedysarum coronarium</i> L.	c
<i>Darniella melitensis</i> (Botchantzev) Brullo	R		
Key: D =Dominating within the community, S =Scarce amounts, more than 5 but not dominating. R =Individual or up to 5 plants. c =Opportunistic casual or ruderal plants.			

Finally, one should mention a hirsute form of *Valantia muralis* that Arcangelli (1894) and Duthie in Sommier Caruana Gatto (1915) cites as *Valantia muralis* var. *hirsuta* Gussone from the Maltese islands (figure 6). Quoting Arcangelli (1894) - “creste del fr. piu numerose e piu lunghe” - this variety differs from the typical *V. muralis* by having larger and numerous ‘crests’ which should be referring to the bristles on the fruit. Such plants were found individually scattered on boulders and scree at Mistra Rocks, San Blas, Gozo (Apr 2009). At a first glance, these specimens may look like *Valantia hispida* due to their numerous and long bristles (up to 1.2mm) covering the entire fructiferous body. However a closer inspection reveals a distinct dorsal cornule. The upper part of the stem was sub-hirsute, becoming gradually glabrous towards the base. *Valantia muralis* var. *hirsuta* is currently not a recognised taxon by Tutin *et al.* (1976), Aiello *et al.* (1981), Pignatti (1982), and IPNI (2009). Owing to its few but distinct differences from the typical *V. muralis*, this variety should be further studied in order to determine the validity of its taxon. It has a very restricted distribution where Arcangelli (1894) reports it only from Catania and Syracuse in Sicily and from the Maltese Islands, so it has not been studied in detail by previous scientists.

FIGURES:



Figure 1: Habitat and habit of *Valantia hispida*, Xatt l-Ahmar, Gozo (Malta)

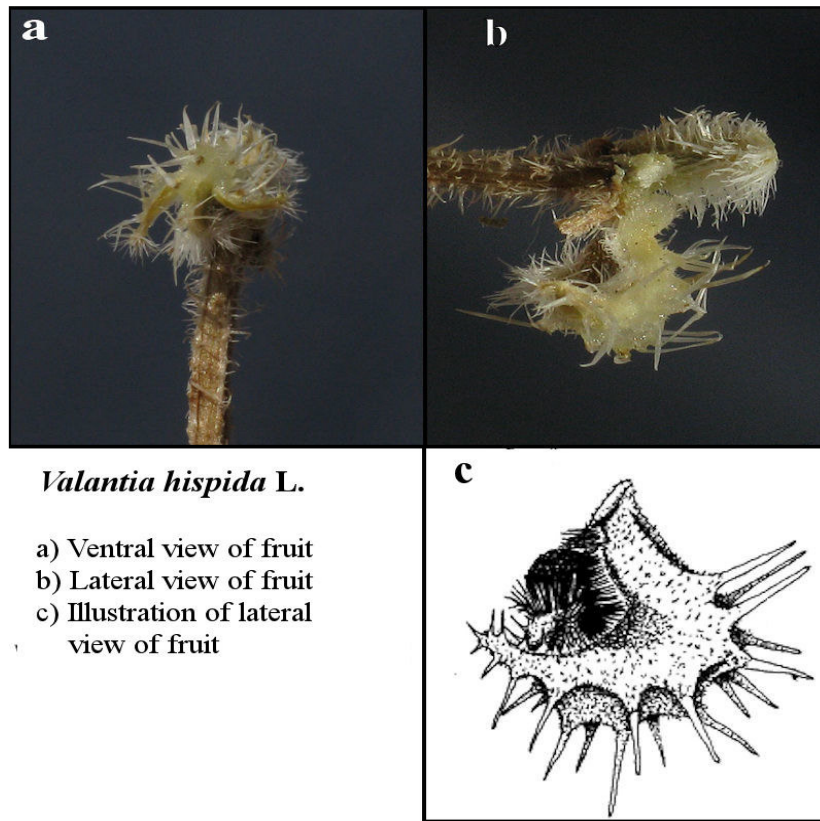


Figure 2: The fructiferous body of *Valantia hispida* from Malta compared with a line-drawing of a typical fruit extracted from Aiello *et. al* (1981).



Figure 3: Comparison of the fructiferous body of *Valantia muralis* (left) and *V. hispida*



Figure 4: Tip of stem showing flowers and fruit of *Valantia hispida*

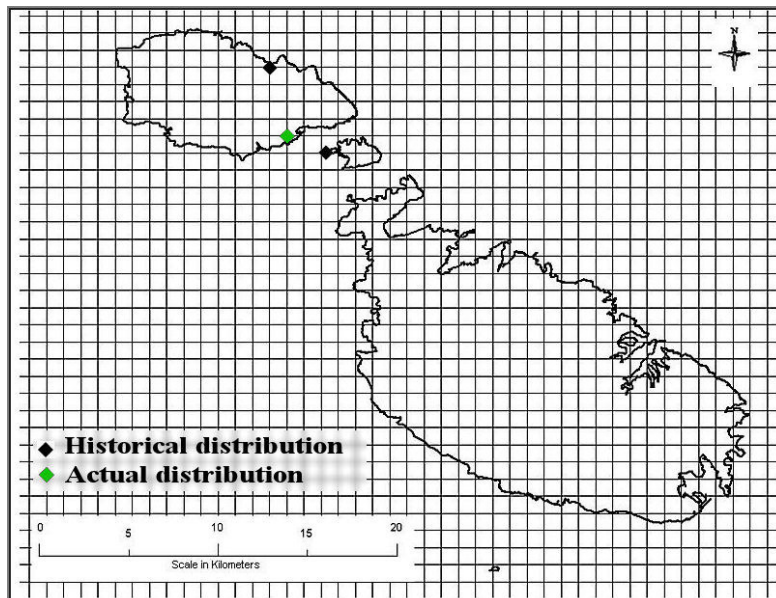


Figure 5: Distribution of *Valantia hispida* in the Maltese islands (UTM, zone 33S, 1 x 1 km grid)



Figure 6: *V. muralis* var. *hirsuta* Gussone found on Mistra Rocks, Gozo with long and numerous bristles and a dorsal cornule (total 4 cornules) in its fructiferous body.

All photographs in this article were taken by the author himself.

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