

'Super Spot': A new Cistus ladanifer L. cultivar

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RESUMEN: Se describe la nueva variedad hortícola 'Super Spot' de *Cistus ladanifer*, derivada de la variedad botánica *supermaculatus* P.P. Buitrago et al. La nueva variedad se caracteriza fundamentalmente por sus grandes manchas rojo oscuro a púrpura y rosa brillante que ocupan entre el 60 y 80% de la parte basal de los pétalos.

Palabras clave: *Cistus ladanifer*, novedad hortícola, cultivariedad, Ciudad Real, España.

ABSTRACT: A new horticultural variety 'Super Spot' is described to *Cistus ladanifer*, coming from the botanical variety *supermaculatus* P.P. Buitrago et al. The new variety is characterized mainly by their big, dark red to purple and bright rose spots, which occupy 60-80% of the basal portion of petals.

Key words: *Cistus ladanifer*, horticultural novelty, cultivar, Ciudad Real, Spain.

INTRODUCTION

Cistus ladanifer L. (Cistaceae) is an extremely aromatic, semi-evergreen, widely branched shrub that is widely distributed throughout southwestern Europe, notably Spain, Portugal and France and northwest Africa (GBIF, 2023; Martín-Bolaños and Guinea, 1949). It has been reported as naturalized in other Mediterranean countries, for instance in Cyprus (Du Plessis et al., 2018). It grows in a wide range of environmental conditions, always on siliceous well drained substrates, from forests to rocky landscapes; produces flower buds during late winter; and blooms profusely in early spring (Demoly and Montserrat, 1993). It is a valuable ornamental landscape species of the mountains and siliceous plains of the eastern Iberian Peninsula, western Maghreb and France, where the mean annual temperature is 12 to 18 °C, in USDA winter hardiness zones (7) 8 to 10 (UK-RHS H4 to H3) (Gloning et al., 2013). It

is currently not included in the Red List of Protected Wild Plants in either Spain or Portugal, and is even considered an invasive shrub in South Africa (Du Plessis et al., 2018). The flower color of *C. ladanifer* is limited to white or white with a purple spot at the base of the petals. However, there is a great demand for new flower colors, especially in gardens with siliceous substrates in Western Europe, Australia and the USA (Filippi, 2023).

In all European and North African populations and subspecies of *Cistus ladanifer*, white flowers provided with a purple blotch at the base of the petals, usually about 1/4 of the total petal length, and others completely white have been described. Generally, the blotched flowers are largely the most common (Dansereau, 1951). In 1824, *C. ladanifer* var. *albiflorus* Dun. (Dunal, 1824). was reported for the first time for its entirely white flowers (Dansereau, 1951) and recently Tejerina and Vázquez (2021) described from Valverde del Fresno

(Cáceres, Spain) the variety *sanguineus*, characterized by its relatively small flowers, with pink to pink-purplish-purple petals more or less pale, provided with a dark basal spot, surrounded by white that gradually fades with the pink of the rest of the petal (cf. Buitrago et al., 2023).

Cistus ladanifer communities have in the area a distribution along evergreen oak (*Quercus rotundifolia* Lam.) forest margins and in two of these, situated in Los Cortijos and Navas de Estena (Ciudad Real, Spain), individuals of the variety *supermaculatus* occur (Buitrago et al., 2023). This last is not yet widely used, because the number of the wild individuals is extremely rare. Only one to four plants with few branches and leaves, have been found so far in each one of these two localities, within a limited geographic area in west central Iberian Peninsula. Recently, a new cultivar was bred selectively from this wild population and was named ‘Super Spot’. This new cultivar combines relative cold hardiness and ease of cultivation uniformly provided with largely dark red blotched white flowers and abundant, persistent leaves. The uniform blooming and flower morphology makes this cultivar superior to its wild parent.

RESULTS AND DISCUSSION

Origin

Many new *Cistus* varieties, including ‘Paul Pècherat’, ‘Alan Fradd’, ‘Elma’, and ‘Jenkyn Place’ (Filippi, 2023), were derived from programmed or accidental hybridization of *Cistus ladanifer* with other species (*C. salviifolius* L., *C. monspeliensis* L., *C. creticus* L., *C. inflatus* Pourr. ex J.P. Demoly, *C. heterophyllus* Desf., *C. populifolius* L., or *C. laurifolius* L.), but also from open-pollinated seeds or bud mutations.

In 2019, between July and September, open-pollinated seeds were collected from a wild, white-flowered heavily spotted *C. ladanifer* var. *supermaculatus* Buitrago et al., in the rockrose macchia of Nava de Estena, where dominates common *C. ladanifer* var. *ladanifer*, in Ciudad Real province, Spain. In April of 2020, these seeds were sown in the open air at Ciudad Real city, Spain, in a 20 alveoli forest tray, about 5 or 6 seeds per alveolus, in total 100/120 seeds. A mixture of 80% universal substrate and 20% siliceous soil collected in a “jaral” (a community dominated by *Cistus ladanifer*) was used. Germination was observed ten days after sowing, extending over the following two weeks. Eighteen seedlings were obtained, of which two were transplanted and cultivated in Ciudad Real

city, in pots within urban environment, seven specimens in Picón, on volcanic soil, seven specimens in Alcolea de Calatrava, on a piedmont composed of quartzite pebbles with a clay matrix, and two specimens in Miguelturra, in soil composed of universal substrate. All localities in the province of Ciudad Real. Extreme heat in the first year and blackbirds caused several casualties in Picón, Alcolea and Miguelturra. Two excellent specimens in Picón, produced their first bloom in April 2023. These have significantly more uniformly blotched corollas than their wild parent. After 3 years of cultivation (2020–23), all the clones had stable and consistent morphological traits. *Cistus* ‘Super Spot’ (due to the remarkable purple stain) will be submitted in the short future to the process of official registration with the American Public Gardens Association (Mr. Stefan Lura, US. National Arboretum, 3501 New York Avenue, Washington DC 20002-1958, USA, Stefan.lura@usda.gov), which is the International Cultivar Registration Authority for *Cistus*.

Description

‘Super Spot’ plants from Picón (Ciudad Real, Spain) were selected for data collection. The following morphological traits were recorded in 2023 during the flowering period: plant height, leaf length and width, corolla diameter and blotching pattern, and flowering period duration. Descriptions of all colors were based on the Red-Green-Blue codes. The botanical characteristics of *Cistus ladanifer* ‘Super Spot’, of *Cistus ladanifer* var. *supermaculatus*, and *C. ladanifer* var. *ladanifer* are presented in Table 1. ‘Super Spot’ differs from the typical *Cistus ladanifer* notably for the blotching pattern and dominant color of its flowers and from *C. ladanifer* var. *supermaculatus* for the uniformity of flower types.

The original ‘Super Spot’ seedling first flowered in 2023, 3 years after sowing. It begins to flower from late April to early May and quickly reaches full bloom around mid-May. On average, flowering finishes in the last week of May. It can overwinter in and around Ciudad Real, Spain.

Its blooming pattern ranges from single flowered branches to others umbrella shaped that comprised one to seven individual flowers. The individual corollas of ‘Super Spot’ were, on average, 75 ± 1.5 mm in diameter, which were larger than those of *C. ladanifer* var. *ladanifer* (diameter, 65 ± 1.5 mm) (Table 1). Both have corollas with five lobes and wavy lobe margins (Fig. 1). The flower petals of ‘Super Spot’ are white (RGB values 255-255-255) with large dark red to purple and bright pink blotches covering about a 60% to 80% of the petal, whose color ranges from the dark subbasal spot

(RGB values 52-0-0) to the peripheral bright pink areas (RGB values 182-18-90), through a transitional dark red (RGB values 50-0-0) (Fig. 1C), whereas the petals of *C. ladanifer* var. *ladanifer* have small blotches, covering only a 5% of the petal surface, or do not have any noticeable blotches (Fig. 1D). The base of the petals presents in both a pale yellow color (RGB values 255-255-171), and style and filaments of both plants are yellow (255-230-0). 'Super Spot' differs from *Cistus ladanifer* var. *supermaculatus*, for the uniformity of its flowers.

Propagation and culture

'Super Spot' seeds germinate untreated but to improve the germination percentage, they can be scalded, stratified at 20 °C for three weeks and then washed with warm water or scarified with sandpaper followed by immersion in water at 90 °C. Silva-Dias et al. (2019) have shown for *C. ladanifer* var. *ladanifer* that parameters of germination were variously affected by heat treatments—positively in the range 80–100 °C, negatively above 130 °C.

'Super Spot' can theoretically be propagated vegetatively via cuttings. However, in April 2023 wild individuals from Los Cortijos, of *Cistus ladanifer* var. *supermaculatus*, were propagated asexually via cuttings, in a 20 alveoli forest tray, in the courtyard of the Murcia University experimental garden, in parallel with others from the type variety. Softwood cuttings were collected in mid- to late-April were open air cultured. They were dipped for 5 s in indole butyric acid (0.4 % w/v ethanol, 4 g/liter), then grown in siliceous sand and peat mixture media at 28% to 95% relative humidity and temperatures ranging from 12 to 34 °C. The plants survived the initial weeks but were dying within 40 to 60 days, both those from the type and those from the new variety.

The "Super Spot" rockroses were affected by the winter storm Filomena -coldest episode in the last decade in Spain- during January 2021, with no deaths due to low temperatures, which reached -5/-7 °C in the area of Ciudad Real. Recent summer 2022, temperatures reached 42 °C in the province of Ciudad Real, with no deaths due to this cause. Rockroses only seem to have been affected by extreme temperatures during their first year of life.

Principal merits

The majority of the *Cistus* plants have, white, pink or purple flowers, rarely yellowish, sometimes provided with relatively small purple spots at the base of the five petals. In comparison with the currently available cultivars, 'Super Spot' is unique in

that it has flowers with exceptionally large spots with a gradation between bright red to deep purple, that covers from 60 to 80 % of the petal, and high-quality foliage. 'Super Spot' flowers and foliage are cold hardy in temperatures as low as -3 °C, but slight foliage injury is possible at this temperature in open, exposed locations. Its leaves stay green all year long in the area of Los Estados del Duque, Ciudad Real, Spain. 'Super Spot' could be planted anywhere, from the colder regions in central Spain and west of France to the warmer regions from the Algarve (Portugal) to western Andalucía in Spain. In addition, it is easy to cultivate both at the commercial production and landscaping levels.

Availability

Information about plant material and cultivation on 'Super Spot' can be obtained from Pedro Pablo Buitrago at the Department of Geography and Spatial Planning, Faculty of Arts, University of Castilla-La Mancha, Avda. Camilo José Cela, S/N, 13071 Ciudad Real, Spain (PedroPablo.Buitrago@alu.uclm.es)

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‘Super Spot’: A new *Cistus ladanifer* L. cultivar

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Table 1. Comparison of the plant characteristics of ‘Super Spot’ and the wild *Cistus ladanifer* var. *supermaculatus* and *Cistus ladanifer* var. *ladanifer*

Traits*	Super Spot	<i>C. ladanifer</i> var. <i>supermaculatus</i>	<i>C. ladanifer</i> var. <i>ladanifer</i>
Plant height (cm)	40-70	40-90	80-200
Leaf length (mm)	60-80	(60)70-86(120)	50-100
Leaf width (mm)	8-16	7-11(16)	6-20
Corolla diameter (cm)	7-8	7-9	5-8
Flower color	All flowers uniformly white, with large purple to dark red blotch covering 60% of the petal	White with large purple to dark red blotch covering from 60 to over 80% of the petal surface. Some flowers revert totally or partially to the type	White, pure** or with small purple blotch
Flowering period	15 Apr. – 1 May	15 Apr. – 1 May	1 Apr. – 15 May

*All data were collected during the flowering period

**Plants with full, pure white petals, have received several names, as f. *inmaculatus* Dansereau or var. *albiflorus* Dunal

Fig. 1. The characteristics of 'Super Spot' and the wild *Cistus ladanifer* var. *supermaculatus*. (A, B and C) *Cistus ladanifer* var. *supermaculatus* flower diversity in the wild at Los Cortijos. (D) *Cistus ladanifer* var. *supermaculatus* single flower in the wild at Navas. (E) Single flower characteristics of 'Super Spot' with large dark blotches that range from very dark red, through dark red, to bright pink (RGB 52-0-0, 52-0-0 and 182-18-90). (F) Two flowers of a wild specimen of *Cistus ladanifer* var. *supermaculatus*, with and without blotches. (G) Flowers uniformly blotched of a cultivated specimen of *Cistus ladanifer* 'Super Spot' at Picón (Ciudad Real, Spain). Images: A to C and F D. Rivera and C. Obón. D, E and G, P.P. Buitrago.

