



# THE FLORA OF FORMENTERA

## THE FLORA OF FORMENTERA

### EDICIÓ

Edited and published by Consell  
Insular de Formentera. May 2021.

Photographs and text by Jordi  
Serapio Riera, Endèmics.  
English translation by Elisa Cane.

DL F63-2021

# THE PLANTS OF FORMENTERERA

The tiny *plantaginaceae* *Chaenorhinum formenterae*, endemic to the Pitiüses and Mallorca, abounds in the sandy soils and beaches of Formentera.

This pamphlet aims to introduce you to the Formentera native flora.

The plant heritage is one of the most important environmental elements of the island, and one of the reasons why a large part of it is protected under two major schemes: the Parc Natural de ses Salines, and Natura 2000, a network of nature protection areas regulated by the European Union. The flora totals over 600 species, and the habitat diversity is remarkable considering the small size of the island. It includes large beaches with sand dunes, cliffs, salt marshes, cultivated fields and woodlands.

We will go on a tour in these habitats to discover their most unusual characteristics and the most notable plants that grow here. You will also find curious facts and some traditional uses.

The purpose of this pamphlet is to awaken the interest in the nature of the island and to improve your knowledge about it, and to encourage people to explore it in a sustainable way.

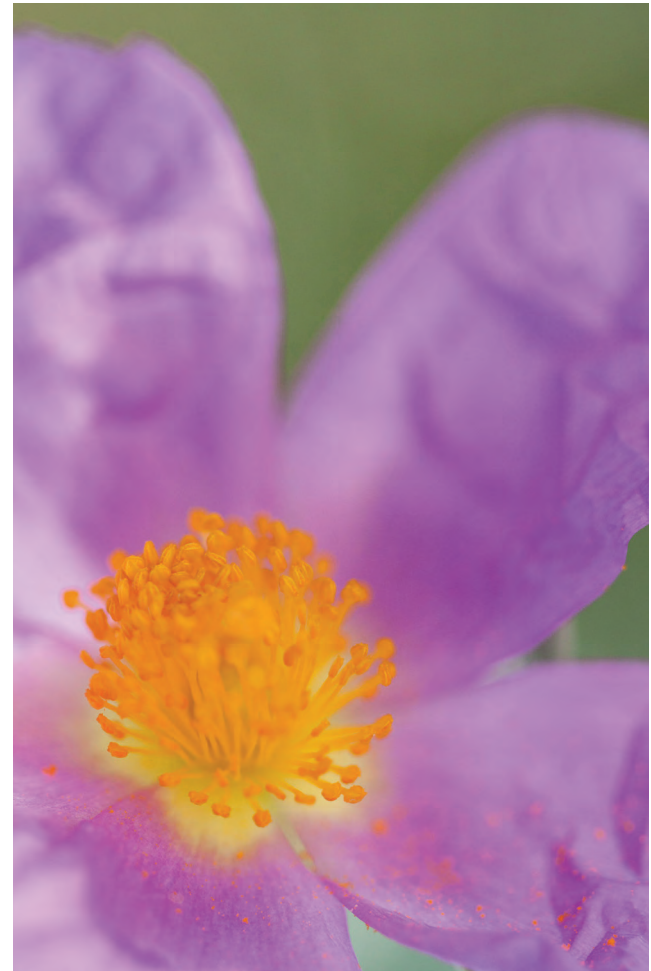


The pamphlet also aims to highlight the extreme fragility of the natural heritage and the need to manage and conserve it for future generations.

The environment of Formentera can be described as austere and special. Despite receiving, on average, the lowest amount of rainfall of all the Balearic Islands, its vegetation has the ability to display splendour.

The best time to enjoy the island's flora and landscapes is definitely the spring, a season that here is as short as it is intense. During the sunny days at the end of February it is already possible to admire the start of the flowering season, lasting until the end of May. Then, the lengthening of the days and the rising temperature, gradually cause the summer dormancy (aestivation) in which plants protect themselves from the hottest months. The coveted autumn rain, very important for Mediterranean vegetation, triggers a new vegetative phase after the summer drought. The autumn here is effectively a second spring, when myriads of seeds germinate and specially adapted species blossom, colourfully depicting the island landscapes again.

The ecotouristic interest of Formentera stems from the uniqueness of its countryside, appreciable in the striking landscapes and the chance of spotting unique species.





A group of five people is walking away from the camera on a dirt path that winds through a woodland. On the left, a large, gnarled tree with a thick trunk and sparse foliage stands prominently. The path is surrounded by dense green trees and shrubs. The sky is a clear, bright blue. The overall scene is bright and sunny, suggesting a pleasant day for a walk.

# LET'S ENTER THE WOODLAND

Formentera's **woodlands** are formed by a diverse group of plant communities, popularly known as *bosques* (woods).

The woodlands comprise canopies of pine trees and savins, an understorey of woody plants such as mastics, juniper, rosemary and heather, and a variety of herbaceous plants.

The woodland species in Formentera are perennial, evergreen and completely adapted to the Mediterranean climate.

The plant composition of each woodland can either be dense or quite sparse, and variously rich in species. Where the soil composition allows more plant density we find the *maquis*, the characteristic Mediterranean shrubland, which sometimes hosts the strawberry tree (*Arbutus unedo*), normally very scarce in Formentera.

Where the woody vegetation is less dense, the woodland shows a more varied plant community where rosemary, heather and several rock rose species dominate. This vegetation composition is called *garrigue* and represents the most widespread habitat on the island.







The arboretum, which is very rare on the island, is only found in the largest forest areas, in the La Mola area.

The *tomillares*, a distinctive kind of low and open shrubland, are another very common habitat on the island. A particular species of thyme, *Thymbra capitata*, aromatic and very appreciated by the local population, is the most important species here, together with some species in the genus *Micromeria*, belonging to the mint family.

Oaks are extremely rare in Formentera. It is present in a sparse and isolated fashion therefore it does not form a woodland community. It is so distinctive that two of the few found on the island are classified individually as special trees: the Can Rita Oak and the Can Vicent des Torrent Oak.

Woodland habitats are mostly present at la Mola and Cap de Barbaria, however we can find them scattered within cultivated areas around the whole island, creating a greatly diverse mosaic and landscape value.

The function of the woodland ecosystem is essential for retaining rain water and protecting the soil. It also provides vital refuge for wildlife.

Human activity is apparent everywhere in the woodlands, even if it is not immediately visible, considering it profoundly transformed this habitat since ancient times. The woodland represented a major resource, for example for the production of charcoal and quicklime and for the exploitation of wood. The remains of some of these human industries, such as limestone quarries and coal cellars, are still visible in many places on the island.



Thyme (*Thymbra capitata*)





# EPHEMERAL DIVERSITY

*Ranunculus paludosus barceloi*, with showy yellow flowers, is one of the species of interest that is found in the meadows of annual and bulbous plants. It is endemic to the Pitiüses and Mallorca.

Where the soil cover is shallow and stony and where the woodland opens up there is a great diversity of plants: grasslands of bulbs and annual plants. These open areas are rich in special interest species, sometimes very tiny, and the places where to find the delicate orchids.

In Formentera, grasslands occupy large areas, and they are designated as Special Areas of Conservation by the Habitats Directives of the European Union.

The life cycle of the plants we find here is extremely short: towards the end of spring and in summer the plants are dry, then the autumn rain stimulates seed germination and bulb growth. The result is a spectacularly exuberant and brief blossoming.



Autumn flowering of *Prospero obtusifolium*

## THE ORCHIDS OF FORMENTERA

This plant group is found in open woodlands and it stands out for the beauty of its flowers. No other family fascinates more nature lovers.

Orchids are also well known for their complex pollination strategies based on tricking specific insects. For instance, the species in the genus *Ophrys* mimic the female morphology of some *hymenopterans* (wasps) incredibly well, deceiving the males that, immediately seduced, they try to mate with the *Ophrys* flowers. We can enjoy this kind of evolution marvels simply by taking a walk into the island woodlands in spring.

In Formentera there are seventeen native species known so far. A remarkable diversity for such a small territory.

The fragility of these tiny plants is apparent as that they only grow in undisturbed soil and in very particular conditions. Therefore, picking their flowers is not justified under any circumstances.





*Ophrys lutea*. March–April



*Anacamptis collina*. February–March

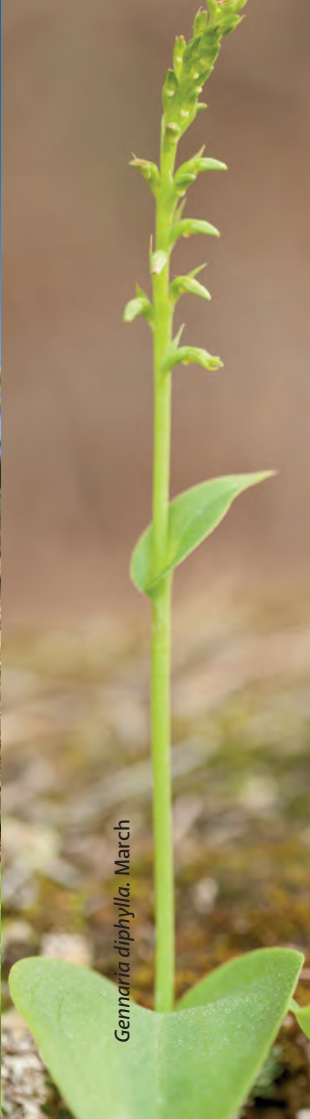


*Ophrys apifera*. April–May



*Himantoglossum robertianum*. February



A photograph of the plant *Gennaria diphylla*. It features a single, upright, green stem with a few small, pointed bracts. At the base, there are two large, heart-shaped, bright green leaves. The background is a soft-focus, natural outdoor setting.

*Gennaria diphylla*. March

A photograph of the plant *Anacamptis pyramidalis*. The image shows a tall, slender green stem topped with a large, dense, rounded cluster of small, light purple flowers. The stem is supported by a few long, narrow, yellowish-green leaves. The background is a blurred natural environment.

*Anacamptis pyramidalis*. May

A photograph of the plant *Ophrys tenthredinifera*. The image shows a green stem with several flowers. The flowers have a distinctive pattern of purple and yellow, with a dark, almost black, patch on the lower petal. The background is a soft-focus green field.

*Ophrys tenthredinifera*. February–March

A photograph of the plant *Setopias parviflora*. The image shows a tall, slender green stem with several flowers. The flowers are small and have a purple and yellow color scheme. The stem is supported by a few long, narrow, yellowish-green leaves. The background is a blurred natural environment.

*Setopias parviflora*. April

A photograph of the plant *Ophrys bombyliflora*. The image shows a green stem with several flowers. The flowers have a dark purple and yellow color scheme. The stem is supported by a few long, narrow, yellowish-green leaves. The background is a blurred natural environment.

*Ophrys bombyliflora*. March



*Orchis anthropophora*. April



*Ophrys dyris*. February–March



*Anacamptis coriophora*. April



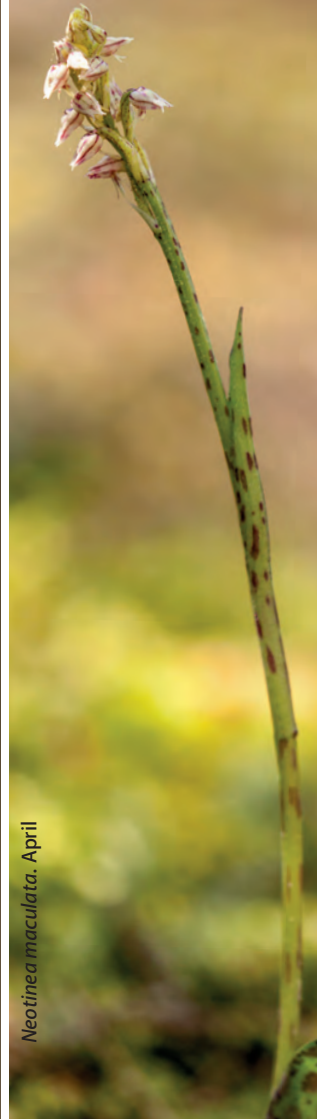
*Spiranthes spiralis*. October



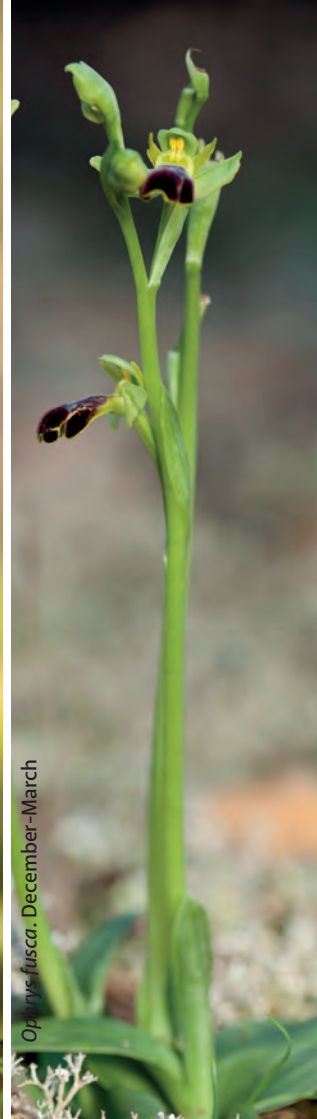




*Ophrys fusca bilumulata*. October



*Neotinea maculata*. April



*Ophrys fusca*. December–March



*Ophrys speculum*. March–April



# AMONG CULTIVATED FIELDS

A considerable amount of the island is farmed. Fig trees (the true symbol of the island) and vine farming, combined with cereal crops, occupy most of the farming land. The other major cultivations, but smaller in terms of area, are almond, carob and olive trees. All the cultivations are managed in the typical dryland farming technique of the island, along with prominent goat and sheep farming. Irrigated orchards are very rare as the island has poor water resources.

Human intervention contributed to the establishment of specialised plant communities that adapted their life cycle to the timing of farming work. They are ruderal wild flowers, commonly known as weeds.

An endless list of them, with precious spring blooms, spread their perfumes and colours in the farmland and across the inland paths: poppies, marigolds, bindweeds, daisies, gladiolus and many more.

It is a very diverse and popular flora, appreciated since ancient times for culinary and medicinal uses.

Together with the woodland, the habitat formed by these plants composes a patchwork landscape particularly attractive in years with abundant rain. Unfortunately, the phenomenon of abandonment of agricultural land causes the woodland to extend, reducing this characteristic habitat.





## TRADITIONAL PLANT USES

Many of the wild plants growing in Formentera have been used for their medicinal and culinary properties. Some of the most popular are:

a species of thyme, *Thymbra capitata*, a very appreciated aromatic herb. Its flowers are used to season the delicious sun-dried figs, a dish that many people still make at home these days. The whole plant is also one of the ingredients of the drink *licor de hierbas*; bladder campion, *Silene vulgaris*, locally called *verdura* (vegetable), is the main ingredient of the *cuinat*, a dish of the Pitiusas (Ibiza and Formentera) typical during Easter Holy Week; and perforate St John's-wort, *Hypericum perforatum*, which is frequently found on path edges and it is traditionally used to make an oil with healing properties.

Nowadays, many traditional uses have disappeared and a large part of the popular knowledge, symbolic of the close relationship between people and the environment, has been lost.

Those considering collecting plants are advised to make careful and sustainable use of this valuable natural heritage. Please read the protected species regulations and refrain from collecting any plant which cannot be identified.





# SAND DUNE VEGETATION

The divine Formentera beaches host one of the best preserved sand dune ecosystems of the Balearic Islands. The most important examples being Ses Illetas, es Cavall de'en Borràs, the large beaches Levante and Migjorn, as well as s'Alga beach on s'Espalmador.

They all are complex and dynamic ecosystems with great ecological value and they include underwater areas mainly constituted by reefs that form the marine flowering plant *Posidonia oceanica* meadows. On the beaches, the plants growing on the dunes have a fundamental function: their roots, often very deep, hold the sand and stabilise the dunes. The whole system works as a single organism, balancing the accumulation of sediments with the erosion caused by the wind and the sea waves, and allowing the preservation of these alluring landscapes.

The dune vegetation comprises a multitude of species from different families, all highly specialised and adapted to grow on sand and in severe conditions. The various plant communities colonise in a succession that grows in number as we go further inland. Closer to the shore we find some grasses such as *Elymus farctus*, *Sporobolus pungens*, *Crucianella maritima* and the European sea rocket (*Cakile maritima*). A species of trefoils (*Lotus citysoides*) turns the sand dunes yellow in spring. More species add to the diversity: the sea-holly (*Eryngium maritimum*), the sea bindweed (*Calystegia soldanella*), and the beautiful sea daffodil (*Pancratium maritimum*) which opens its big and aromatic white flowers during the hottest months of the



Sea daffodil (*Pancratium maritimum*)



Savinar coastline shaped by the prevailing winds on the dunes of the beaches of Es Cavall d'en Borràs.



year. Further from the shore, the dunes are populated by the marram grass (*Ammophila arenaria*) which performs an important action holding the sand and consolidating the foremost dunes.

Here we also find some unusual species such as *Silene cambessedesii*, locally called *molinet*, which is one of the botanical treasures of Formentera. Its distribution is more scarce in Ibiza and it is extremely rare in the Castellón coast (Valencian Community), being endemic in these three places. It blossoms in March and April and its striking pink appearance embellishes the beach dunes.

The cotton weed plant (*Otanthus martumus*), locally known as *herba des Trucadors*, is currently a very rare and threatened species included in several recovery projects.

The most established dunes that lay further from the sea shore host the *sabinars*, a mixed woodland and shrubland habitat characterised by the presence of junipers.

The dune system is extremely fragile, affected also by severe human pressures in summer months. Therefore, it is vital to walk on designated paths in order to minimise trampling and prevent the degradation of this extraordinary habitat.



*Silene cambessedesii*





# THE SALT LAKE FLORA



Salt marshes are peculiar habitats where unique species grow. In Formentera we find this habitat around the salt lakes (s'Estany Pudent, s'Estany des Peix and the salt mines Ferrer and Marroig) and in the small lagoon on the islet s'Espalmador.

The extreme salinity of the marshes is a limiting factor for most plants. Only a few species are adapted to live in these conditions.

Glassworts and rushes are the protagonists in these areas, together with other interesting plant groups such as the inconspicuous, but scientifically very important, sea-lavender (*Limonium*). Within the Balearic Islands, the salt lakes of Formentera represent one of the places with the highest species diversity for this genus, and some of its species are endemic: *Limonium formenterae*, *Limonium wiedmanni* and *Limonium grosii* are the most important as they are found exclusively in the Pitiusas. The parasitic plant *Cynomorium coccineum*, which lacks chlorophyll, is often found growing with the sea-lavenders.

Along the Camí des Brolls, skirting the pond s'Estany Pudent, there are several areas where we find vegetation associated with freshwater as it flows onto the pond surface. Reedmace and common reeds are characteristic and unique to these areas, with the exception of some small pools that occasionally form after raining. These pools have great botanical importance, despite their tiny dimensions, because they contribute to the island flora diversity.



*Limonium formenterae*

A close-up photograph of several yellow flowers on green stems, set against a clear blue sky. The flowers are in various stages of bloom, with some showing distinct petals and centers. The stems are thin and green, with some small buds visible. The overall composition is bright and natural.

# BETWEEN SALT AND ROCKS: COASTAL PLANTS

Especially abundant along the coast, *Diploaxis ibicensis*.

The small size of the island and the absence of mountains make the island very vulnerable to the sea's influence even in the interior. In fact, almost thirty per cent of the plants are typical of coastal communities.

The rocky stretch around the coast, which is most exposed to the sea, is poor in vegetation as it is affected by sea sprays and the almost absolute lack of soil. Few plants can grow in such a hostile environment, and they are either unobtrusive or adopt a bumpy morphology caused by the action of the prevailing winds.

Some species of sea-lavender are of particular relevance in this part of the coast, which stands out for its high number of endemisms within the island. There are no common names for these species in the Pitiusas: the most widespread is *Limonium minutum*, exclusively found in the Balearic Islands, followed by *Limonium formenterae*. More locally common we find *Limonium cossonianum*, which is the only one in this genus with white flowers. The sea fennel (*Crithmum maritimum*) usually grows with the sea-lavender forming characteristic communities.

Interestingly, *Diplotaxis ibicensis*, a species whose scientific name refers to the island of Ibiza, is more abundant here than in Ibiza, and it is also present in small communities in the Valencian coast and on the islands Cabrera and Majorca.

We find this coastal habitat also on the islets around Formentera: s'Espardell, s'Espalmador and es Freus.





An aerial photograph of a coastline. The water is a vibrant turquoise color, transitioning to a deeper blue further out. The coastline is characterized by white, rocky cliffs that are partially covered with green vegetation. The sky is a clear, bright blue. The text "AMID CRACKS AND CLIFFS" is overlaid in the center of the image in a white, sans-serif font.

# AMID CRACKS AND CLIFFS

The cliffs of la Mola and some small areas at Cap de Barbaria guard species of exceptional naturalistic value.

These areas present special microclimatic conditions which act as a shelter for some plants. The Mediterranean dwarf palm (*Chamaerops humilis*) is an example, and it is the only palm native to this territory. Its population in Formentera is confined only on the inaccessible rocks at la Fernanda and Punta de sa Creu.

The *lithophytes* (plants that grow on the rocks) growing at la Mola are rich with native species: we find *Biscutella ebusitana*, *Asperula pau* and *Galium friedrichii*, all exclusive to the Pitiusas, and *Saxifraga corsica cossoniana* which is a tiny plant with white flowers, mostly abundant on the flat rocks and cracks of this area.

In this habitat *Scabiosa cretica* is also important, a medium size bush with spectacular pink flowers.

In the shady folds of the cliffs and in little streams we then find various species of fern of interest.



*Asperula pau*







Seabirds densely populate these places and sustain a community of plants that need nitrate to grow such as *Salsola oppositifolia*, a large bush that does not grow in the rest of the Balearic Islands, only at the lighthouse of la Mola. Another plant with reduced distribution on the other Balearic Islands that lives here is *Lycium intricatum*.

## THE ENDEMIC PLANTS OF THE ISLAND. THE FASCINATION FOR RARITY.

Island isolation affects biodiversity and promotes the evolution of particular morphology features, adapted to the local conditions. The concept of endemism refers to plants and any other organisms which have a geographical distribution restricted to a particular zone. The Mediterranean basin is considered one of the most diverse places of the planet in terms of vegetation, and the Balearic Islands are considered a hot spot for endemisms.

In Formentera there are more than twenty endemic plants. Some of them are also present on the island of Ibiza (endemisms of the Pitiusas), and in the rest of the Balearic Islands. Some others, such as *Silene cambessedesii*, are also found in areas close to the islands, for instance the Valencian Community, Corsica and Sardinia, with which Formentera shares important botanic similarities.



*Lycium intricatum*

*Saxifraga corsica cossonianum*





One of these endemisms, *Delphinium pentagynum formenterantum*, is unique on the island as no other specimens have been found anywhere in the world. It was described only a little over twenty years ago.

The large majority of the endemic plants of Formentera are almost completely unknown by the local people, principally because they are rarities.

These species and their habitats are of great scientific interest and it is vital to preserve them. If they disappear here, we will have lost them forever. For this reason many of them are protected by laws and looked after by conservation programmes.



*Biscutella ebusitana*

## THE ENDEMIC SPECIES

*Allium antoni-bolosii eivissanum*  
*Asperula pau*  
*Bellium bellidioides*  
*Biscutella ebusitana*  
*Carduus ibizensis*  
*Carex rorulenta*  
*Chaenorhinum crassifolium*  
*Chaenorhinum formenterae*  
*Delphinium pentagynum formenteranum*  
*Diploxix ibicensis*  
*Galium friedrichii*  
*Limonium formenterae*  
*Limonium grosii*  
*Limonium minutum*  
*Limonium wiedmannii*  
*Micromeria filiformis*  
*Micromeria microphylla*  
*Ranunculus paludosus barceloi*  
*Romulea assumptionis*  
*Saxifraga corsica cossoniana*  
*Silene cambessedesii*  
*Sonchus willkommii*  
*Teucrium capitatum majoricum*

Exclusive of Formentera, *Delphinium pentagynum formenteranum* is a protected plant and currently subject to conservation programs.





## Further reading

[www.islabotanica.de](http://www.islabotanica.de)

Naturalist Barbara Khlar's website. She is a pioneer in the discovery of many of the island's plant species.

Herbario Virtual del Mediterráneo Occidental

<http://herbarivirtual.uib.es/>

Website by the botanic section of the Universidad de las Islas Baleares. It has information about the majority of the island plants. It is organised in single species pages.

*Flora adlib: The characteristic flora of Formentera and Ibiza*  
(La flora emblemática de Formentera e Ibiza). 2015

Galeria Balear d'Espècies. Conselleria de Medi Ambient del Govern de les Illes Balears.

Plants of Ibiza and Formentera. 113 characteristic plants  
(Plantes d'Eivissa i Formentera. Cent tretze plantes significatives).

2019. Institute of Ibicencan Studies (Institut d'Estudis Eivissencs).



*Cheirolophus intybaceus*, abundant in the Mola.







Consell Insular  
de Formentera

[www.formentera.es](http://www.formentera.es)

