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## New additions to the vascular flora of the Kastellorizo island group (East Aegean Islands, Greece)

### Abstract

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This work is a contribution to the knowledge of the vascular flora of the archipelago (SE Greece), which is part of the South Anatolian biogeographical province. An autumn survey (October 2025) identified nine species new for the archipelago (*Amaranthus viridis*, *Dittrichia graveolens*, *Eclipta prostrata*, *Euphorbia prostrata*, *Gastridium phleoides*, *Orobanche minor*, *Portulaca oleracea*, *Setaria adhaerens*, *Sorghum halepense*) and clarified the distribution of several taxa of great biogeographical interest (e.g. *Campanula kastellorizana*, *Colchicum macrophyllum*, *Cyclamen maritimum*, *Dianthus mugensis*, *Polygonum praelongum*, *Thliphthisa brevifolia*). A checklist is also presented for Aghios Georgios, a small satellite islet (1 ha) with a high species richness as 149 plant taxa have been recorded in total. The Kastellorizo archipelago, rich in about twenty endemic vascular plants, is a very interesting biogeographical entity that deserves increased protection of its biodiversity.

**Key words:** Aghios Georgios islet, Alien plants, Anatolian flora, Endemism, Mediterranean region, Megisti island, Phytogeography, Small Mediterranean Islands.

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### Introduction

The Kastellorizo island group (East Aegean Islands, Greece) constitutes a small archipelago in the Eastern Mediterranean Sea including three main islands: Kastellorizo or Megisti (921 ha) with a maximum altitude of 272 m, Ro (147 ha) and Strongili (99.5 ha), and several islets mostly situated to the north-east of Kastellorizo (Fig. 1). The large islands are situated at only 2-3 km S or SW of the Turkish coast (Antalya vilayet), where Kas is the closest large city.

From a phytogeographical point of view, this archipelago and the nearby Turkish coast belong to the South Anatolian Province, and more specifically to the Tauric Subprovince and the Lycian Sector, if we follow the sectorization proposed by Gerald Parolly (Parolly 2004).

Knowledge about the vascular flora of the Kastellorizo group is quite precise, but now



Fig. 1. The different islands and islets of the Kastellorizo island group (© GoogleEarth) and their geographical position at the south-easternmost edge of Greece, a small archipelago very close to the Anatolian coast.

outdated. Indeed, a first, very thorough inventory was published by Werner Greuter. This work entitled *The flora and phytogeography of Kastellorizo (Dhodhekhanisos, Greece). 1. An annotated catalogue of the vascular plant taxa* (Greuter 1979), was based on surveys conducted by this author and Elli Stamatiadou in 1973 and 1974. On the base of these records, the vascular flora of this archipelago included 424 plant species.

Other inventories were carried out between 1979 and 2012, and these field trips have provided 64 plant records that are new either for the whole island group or for one of its constituent islands (Constantinidis 2013). Then, Arne Strid carried out two botanical trips in mid-May 2021 (Strid 2021) and early April 2024 (Strid 2024b) which allowed him to add about twenty new taxa to the archipelago. According to him, the total number of taxa (species and subspecies) recorded from this archipelago (Greek part) now amounts to *ca.* 530 (Strid 2024b).

However, as is often the case, the autumn flora is much less studied, notably on remote islands. A trip to the island of Kastellorizo in October 2025 provided the opportunity to discover some plants not known from this archipelago, as well as some taxa interesting from a biogeographical point of view. This note therefore aims to contribute to the knowledge of the flora of Kastellorizo and one of its satellite islets, Agios Georgios.

## Material and methods

For a geographical and environmental overview of the Kastellorizo archipelago, as well as the history of its botanical exploration, it is necessary to refer to Greuter (1979).

The inventory of vascular plants of Kastellorizo Island was conducted from October 12th to 17th, 2025, and that of the islet of Aghios Georgios on October 16th. Due to time constraints, the survey of Kastellorizo was incomplete, but we attempted to record all visible plant species. Rainfall had occurred shortly before, resulting in a correct presence of the autumn flora, notably some geophytes.

The islet of Aghios Georgios (surface: 1 ha, perimeter: 490 m) underwent a complete survey for 1 hour and 35 minutes, covering the various sectors and habitats. For this islet, we compared the vascular flora inventoried by Werner Greuter on April 17<sup>th</sup>, 1974 (Greuter 1979) with that recorded during our inventory of October 2025 (see appendix). It should be noted that in his work, Greuter considered the islet Aghios Georgios to be composed of two parts, named Aghios Georgios South and Aghios Georgios North, but currently, they are considered to be two distinct islets named respectively Aghios Georgios and Agriela.

To verify whether a taxon was new or of interest to the archipelago, we relied on the valuable work of Greuter (1979), supplemented by some more recent data provided by Constantinidis (2013) and Strid (2021, 2024b), and specially with the help of the recent *Atlas of the Hellenic Flora* (Strid 2024a).

The nomenclature of vascular plants follows the international database *Plants of the World Online* (<https://pwo.science.kew.org>). The collected specimens are included in the herbarium of Frédéric Médail, which is part of the AIX Herbarium (Aix-en-Provence, France).

## New plant taxa for the Kastellorizo archipelago

The nine plant species newly discovered on Kastellorizo Island in October 2025 are mainly ruderal taxa, some non-native in the Mediterranean region (*Amaranthus viridis* L., *Eclipta prostrata* (L.) L., *Euphorbia prostrata* Aiton, *Sorghum halepense* (L.) Pers.), and whose autumnal phenology can make them pass unnoticed in other seasons. The other five of these new records are native in the Mediterranean region; three are more or less ruderal plants: *Dittrichia graveolens* (L.) Greuter, *Portulaca oleracea* L., *Setaria adhaerens* (Forssk.) Chiov.; and two are stress-tolerant plants found in rocky habitats on Aghios Georgios islet: *Gastridium phleoides* (Nees & Meyen) C.E.Hubb., *Orobanche minor* Sm.

### *Amaranthus viridis* L. (Amaranthaceae)

This species native from SE Mexico to N Argentina is a naturalized and is a ruderal weed. This thermophilous xenophyte is common in Greece and on the East Aegean Islands (Strid 2024a: 61, map 244), except North Pindos and North Central, probably because of its lacking frost resistance (Raus 2022). This new species for Kastellorizo island was found along the roadside between the main harbour of Megisti and the locality of Mandraki where a population of few specimens occurs (F. Médail, obs. & herbarium, 16.10.2025; 36°08'56.22"N / 29°35'37.78"E). Until now, only one amaranth (*Amaranthus blitum* L.) had been reported on the island (Strid 2024a).

### *Dittrichia graveolens* (L.) Greuter (Asteraceae)

This Mediterranean species occupies ruderal habitats, such as roadsides, field margins and waster ground. This autumnal and annual plant is common in Greece, includ-

ing on the East Aegean Islands (Strid 2024a: 271, map 1082), but it was not censused on Kastellorizo Island. It occurs in some ruderal places around the main harbour and the locality of Mandraki.

#### ***Eclipta prostrata* Aiton (Asteraceae)**

This alien taxa originates from America and is becoming naturalized in a large part of the world. It was recently reported in Greece where a few localities have been mapped by Strid (2024a: 232, map 926, for the Peloponnese, Crete, and Rhodes), but is probably already much more common than indicated there. The habitat of this annual or short-lived perennial species is damp ruderal places, and we found a few individuals in a small, damp ditch bordering a paved road near the small port of Mandraki (F. Médail, obs. & photo, 13.10.2025; 36°08'57.12"N / 29°35'45.47"E; det. H.Michaud).

#### ***Euphorbia prostrata* Aiton (Euphorbiaceae)**

This species is native to tropical and subtropical regions of the Americas. It resembles *E. chamaesyce* L. and *E. maculata* L., but the seeds have numerous (5-8) distinct transverse ridges and grooves. This annual spurge is quite common on continental Greece but much rarer on the islands even though it occurs on Rhodes and Karpathos for the SE Aegean area (Strid 2024a: 686, map 2742). A small population was found along the roadside between the main harbour of Megisti and the locality of Mandraki (F. Médail, obs. & herbarium, 13.10.2025; 36°08'56.22"N / 29°35'37.78"E). The species was in fruiting stage and examination of the greyish seeds has permitted its robust identification.

#### ***Gastridium phleoides* (Nees & Meyen) C.E.Hubb. (Poaceae)**

This annual grass was found within a rocky maritime grassland on the islet of Aghios Georgios (F. Médail, obs. & herbarium, 16.10.2025; 36°08'57.68"N / 29°36'08.67"E). In the recent *Atlas of the Hellenic Flora*, Strid (2024a: 1112, map 4448) only recognizes *G. ventricosum* (Gouan) Schinz & Thell. *sensu lato* by including the other *Gastridium* species from Greece within this taxon. He mentions the presence of this species' aggregate in Kastellorizo. However, *G. phleoides* is currently a taxon recognized by the majority of floras and checklists (e.g. Dimopoulos & al. 2013), differing notably from *G. ventricosum* by the entirely hairy aristae of the lemmas. It is to this taxon that our sample from the islet refers.

#### ***Orobanche minor* Sm. (Orobanchaceae)**

This broomrape is common in the Mediterranean region, and it occurs on most of the East Aegean Islands (Strid 2024a: 1033, map 4130). Two individuals were found on the islet of Aghios Georgios, growing within a small horizontal crack of a limestone rock near the sea, but the host plant was not visible at that time of the year (F. Médail, obs. & herbarium, 16.10.2025; 36°08'57.68"N / 29°36'08.67"E; det. D. Pavon). This broomrape should be sought on the larger islands of the archipelago where its presence is likely.

#### ***Portulaca oleracea* L. (Portulacaceae)**

The native status of this ruderal species is doubtful but possible in the Mediterranean region, as its geographical origin remains uncertain. It is common in Greece including the

East Aegean Islands (Strid 2024a: 1173, map 4690), but not yet mentioned for Kastellorizo where a population occurs in the western part of the main harbour of the island (F. Médail, obs., 13.10.2025; 36°09'04.18"N / 29°35'23.85"E). However, no specimen was sampled so that the microspecies to which the plants belong remains uncertain since this polyploid complex includes about twenty microspecies (eg. Danin & al. 2008, 2016).

#### ***Setaria adhaerens* (Forssk.) Chiov. (Poaceae)**

This species is most similar to *S. verticillata* (L.) P.Beauv., the two taxa differing from all the other European *Setaria* species by having setae covered with retrorse rather antrose asperities (Maslo 2019). However, the margin of leaf sheaths are glabrous, not hairy as in *S. verticillata*, and genetic data indicate that they are two distinct species (Wang & al. 2009). The native status of *S. adhaerens* is doubtful in Europe but it has been reported as indigenous in Corsica, Cyprus, Greece, Spain and Turkey (Valdés & Scholz 2009). Its native status in Greece is also accepted by *Flora of Greece Web* (<https://portal.cybertaxonomy.org/flora-greece/>), and this annual grass shows scattered localities on the largest Aegean islands (Strid 2024a: 1147, map 4587). The species is rare on Kastellorizo island where a small population occurs in a ruderal grassland situated on the Kávos promontory (W of the Lycian tomb), where it is probably only a casual alien, not yet naturalized (F. Médail, obs. & herbarium, 14.10.2025; 36°09'04.51"N / 29°35'39.95"E).

#### ***Sorghum halepense* (L.) Pers. (Poaceae)**

This rhizomatous grass is a common alien plant in Greece, including the East Aegean Islands (Strid 2024a: 1148, map 4591). It is found along the ruderal embankments, in orchards and in seasonally damp wastelands on deep soils. In Kastellorizo, a few individuals were found along a roadside in a subhumid wasteland in the locality known as Mandraki (F. Médail, obs. & photo, 13.10.2025; 36°08'57.34"N / 29°35'46.16"E).

### **Observations on some interesting plant taxa or with little-known status**

#### ***Alcea biennis* Winterl (Malvaceae)**

This species was only observed on Aghios Georgios islet where it is fairly abundant in the central part, in rocky maritime grassland (F. Médail, obs. & herbarium, 16.10.2025; 36°08'57.68"N / 29°36'08.67"E). This plant had also been observed by W. Greuter in April 1974, and had named it *Alcea cretica* (Weinm.) Greuter (now included in *A. rosea* L.), but indicating “the identity of the Kastellorizo plant ought to be confirmed, since the individuals observed by me were still juvenile” (Greuter 1979: 558). Indeed, our collection of fruiting specimens shows that this species corresponds in fact to *Alcea biennis*, a correction already performed by Strid (2024a: 980, map 3917).

#### ***Campanula kastelloriziana* Carlström (Campanulaceae)**

This small bellflower is a narrow endemic species restricted to the Kastellorizo archipelago, and one of the most interesting component of these islands. Greuter (1979: 589-590) suspected that it must be “a new, yet undescribed species”. However, the *Campanula drabifolia* group (or *Roucela* complex: Crowl & al. 2015) to which this taxon belongs is

an extremely variable complex that was only studied a few years later by Annette Carlström (1986). This complex currently includes 13 mostly Eastern Mediterranean species that are small, and dichotomously branched annuals. Among these species, one has been described as *Campanula kastellorizana* that is distinct from the Rhodes bellflower (*C. rhodensis* A.DC) in the hispid indumentum, the lax, corymbose inflorescence and the broadly campanulate corymb. Plants are densely hispid and the inflorescence is a lax, dichotomously branched corymb.

The phylogeny and biogeographical analysis of the *Roucela* complex (Crowl & al. 2015) demonstrates that *C. kastellorizana* is part of the earliest diverging clade including *Campanula pinatzzii* Greuter & Phitos found on Karpathos, Kasos and Saria. The two species having diverged approximately 12 million years ago, during the break-up of the Aegean landmass, and are the result of vicariance driven by rising sea levels and continental fragmentation. It is interesting to mention that another bellflower of this group (*C. lycica* Kit Tan & Sorger) occurring on the nearby Turkish coast (Kaş area) but also in Kastellorizo is the result of a different biogeographical history and a more recent differentiation process. Interspecific gene flow between the two taxa is suggested by Crowl & al. (2015).

According to Greuter (1979), the Kastellorizo bellflower is widespread and common in diverse habitats, and “the Kastellorizo plants are far from uniform, and that my material could actually be assigned to three morphologically fairly characteristic units”. Contrasting ecological conditions and island isolation are probably at the origin of micro-evolutionary phenomena resulting in some morphological differences between populations.

The type specimen for this taxon was chosen by Carlström (1986) based on a collection by Greuter on the island of Ro in April 1974, but this does not mean that the species is confined to this island, as Constantinidis (2013) writes. Greuter had in fact mentioned its presence on most of the islands and islets studied: Kastellorizo, Ro, Strongili, Agriela, Aghios Georgios, Psomi, Psoradia. We observed this bellflower in its dry state, quite abundant in the rocky maritime grassland on the islet of Aghios Georgios (F. Médail, obs. & herbarium, 16.10.2025; 36°08'57.68"N / 29°36'08.67"E). Its occurrence on the Turkish islets located very close to those of Greece is highly probable (Fig. 2).

#### ***Colchicum macrophyllum* B.L.Burtt (Colchicaceae)**

This spectacular species is one of the jewels of the autumn flora of the Kastellorizo archipelago (Fig. 2). It has the largest leaves of all the species of *Colchicum*, and its large flowers, which appear in autumn while the corms are leafless, are pale pinkish-white with purplish lilac to violet-purple tessellations (Persson 1999; Rix & al. 2022). This ornamental species is harvested locally for making bouquets and is known as *Krinakia* in Kastellorizo.

The species is distributed in the Aegean and S. Anatolian region. It occurs on the Greek islands of Evvia, Crete, Kos, Simi, Tilos, Rhodes, Chalki, and Kastellorizo (Strid 2024a: 602, map 2407), and in a restricted area in the southwestern Anatolia (Muğla, Turkey): from the Datça peninsula and along the coast between Marmaris and Fethiye (Persson 1999; Rix & al. 2022).

On Kastellorizo Island, the species is mainly located on N.-exposed slopes above the village. As mentioned by Greuter (1979: 599), it is locally abundant on ledges of N.-exposed cliffs and at their foot. But it is not strictly shade-loving, and it can be found in



Fig. 2. *Colchicum macrophyllum*; (a): Kastellorizo island, south-east of the Mandraki Bay, 13.10.2025; (b): Aghios Georgios islet, rocky grassland near the sea, 16.10.2025.

pockets of terra rosa in sunny micro-patches within the phrygana (NE slope of Palaiokastro: F. Médail, obs. & photo, 13.10.2025; 36°08'52.357"N / 29°34'45.53"E). It can be also very abundant in man-made habitats like the fallow field located south-east of the Mandraki Bay (F. Médail, obs. & photo, 13.10.2025; 36°08'49.99"N / 29°35'56.84"E). This colchicum can also withstand the influence of sea spray since a small population occurs on the Aghios Georgios islet, in a rocky grassland a few meters from the sea (F. Médail, obs. & photo, 16.10.2025; 36°08'58.39"N / 29°36'06.62"E) (Fig. 2b).

#### *Cyclamen maritimum* Hildebr. (Primulaceae)

This taxon has long been considered part of the *Cyclamen graecum* Link group, as a subspecies *anatolicum* Letsw. However, a phylogenetic analysis demonstrates the high degree of genetic separation between this taxon and the other two taxa of the group (*C. graecum* subsp. *graecum* and subsp. *candidum*), and this split is dated to approximately 3 million years ago (Culham & Konyves 2014). Because of its genetic distinctiveness, *Cyclamen graecum* subsp. *anatolicum* is here considered as a distinct species named *C. maritimum*. It occurs on the northern part of the Rhodes island, along the southern part of Anatolia (Lycia and Cilicia) in Turkey, and in a limited area of northwest Cyprus (<https://www.cyclamen.org/plants/species/cyclamen-maritimum/>).

Spring surveys of Greuter did not allow for a proper assessment of the species' frequency on the island of Kastellorizo, and he considered it as “scattered” (Greuter 1979: 576). In fact, the species is common in most areas of the island where it is found in pockets of terra rosa between rocks, on crevices in bare rocks, on cliff ledges, or sheltered by the thorny bushes characteristic of the phrygana (Fig. 3). The species name is relevant because this cyclamen can be found very close to the sea, in sub-halophilic conditions such as on the islet of Aghios Georgios, which was home to a population of several hundred individuals in full bloom mid-October (F. Médail, obs. & photo, 16.10.2025; 36°08'57.68"N / 29°36'08.67"E).



Fig. 3. *Cyclamen maritimum*; (a): Kastellorizo island, near the monastery of Aghios Georgios tou Vounou, 14.10.2025; (b): Kastellorizo island, sector of Diski, 15.10.2025.

#### *Dianthus muglensis* Hamzaoglu & Koc, (Caryophyllaceae)

This recently described species is one of the most remarkable elements of the flora of Kastellorizo (Fig. 4). Werner Greuter, who had not collected it himself, referred to E. Stamatiadou's collection and considered it to be related to *Dianthus elegans* Urv. var. *cous* (Boiss.) Reeve, while rightly noting: "The specimens deviate in some respects from the available descriptions: the leaves are broader (to 3.5 mm), and the petals are shortly fimbriate rather than dentate. Having no material for comparison at hand, I cannot decide whether the Kastellorizo plants would best be distinguished as a separate, new variety" (Greuter 1979: 552). A recent morphological study (Hamzaoglu & Koc, 2021) considers that the taxon from the SW Anatolian coast (Muğla) is sufficiently different morphologically and phenologically from *Dianthus elegans* to deserve species status, and it is named *D. muglensis*. In addition to the profound laceration of the petal limbs, *D. muglensis* is distinguished by its 15–35 cm long sterile sucker leaves (vs. 4–12 cm in *D. elegans*) and its flowering in October–November (vs. June–August in *D. elegans*).

The known distribution along the Lycian coast extends from Marmaris to Fethiye (Hamzaoglu & Koc, 2021), but this endemic taxon should be also searched for on the limestone cliffs of the Kas region, an area directly opposite to Kastellorizo Island. One population was thus recently found near Kas, in September 2025 (<https://www.inaturalist.org/observations/317907561>). The species was also recently identified on the west coast of Rhodes (Mt Akramitis) by Arne Strid (Strid 2021).

On Kastellorizo Island, the most accessible population is the one indicated by Strid (2021: 265–266), located at the end of the Kávos promontory by the castle and the Lycian tomb, on semi-shaded limestone cliffs close to the sea. *Dianthus muglensis* forms large cushions here, and was in full bloom in mid-October 2025 (F. Médail, obs., photo & herbarium, 14.10.2025; 36°09'03.70"N / 29°35'42.58"E) (Fig. 5). It constitutes a characteristic species of an undescribed plant community including *Ballota glandulosissima* Hub.-Mor. & Patzak, *Hyoscyamus aureus* L. and *Pentanema verbascifolium* (Willd.) D.Gut.Larr. & al.



Fig. 4. *Dianthus muglensis*; (a) & (b): Kastellorizo Island, Kávos promontory, semi-shaded cliff west of the Lycian tomb, 15.10.2025.

There are also various patches in the cliffs facing north and overlooking the Kastellorizo harbour. A population with a slightly arid ecology, in a sunnier location, located at a higher altitude (*ca.* 100 m a.s.l.) and no longer under direct maritime influence, was found on an east-facing cliff in the southeastern part of the island (F. Médail, obs., 14.10.2025; 36°08'19.77"N / 29°35'39.15"E).

The populations of this “obviously a rare cliff plant” (Greuter 1979) deserves to be censused across the entire archipelago, its biology and ecology studied, as well as the threats that may affect it, in order to ensure the long-term conservation of this outstanding biogeographical element.

#### *Lactuca acanthifolia* (Willd.) Boiss. (Asteraceae)

This interesting Aegean element is distributed from E. Peloponnese to SW Anatolia. Greuter (1979: 597) indicated that this species is rare on Kastellorizo, but because of its late flowering it is probably under-inventoried. We found this chasmophyte in flowers on several locations in the calcareous sea rocks or cliffs, in particular: (1) maritime cliff, W of the Lycian tomb, in the NE peninsula close to the main harbour (F. Médail, obs. & photo, 14.10.2025; 36°09'04.42"N / 29°35'41.32"E); and (2) Aghios Georgios islet, NW coast, rock outcrop in the center of the islet (F. Médail, obs. & photo, 16.10.2025; 36°08'57.66"N / 29°36'08.38"E).

#### *Muscaria parviflorum* Desf. (Asparagaceae)

This bulbous plant with a circum-Mediterranean distribution is included in *Muscaria* subgenus *Pseudomuscaria*. It constitutes the unique taxon within the genus to exhibit an autumn flowering. There are few populations in Greece according to the *Atlas of the Hellenic Flora* (Strid 2024a: 837, map 3348), but records are probably under-represented because of its late phenology. We found no precise indication in the published literature about its presence in Kastellorizo, but Strid (2024a) mentions the species on the island.

This interesting species was discovered in four locations, but it must be somewhat more common in the archipelago: (1) on a small patch of terra rosa within the phrygana located near the road to the small airport, in the northern slope of Palaiokastro (F. Médail, obs. & photo, 13.10.2025; 36°08'58.19"N / 29°34'44.31"E); (2) E of the chapel of Aghios Savas, few meters near the sea (F. Médail, obs. & herbarium, 15.10.2025; 36°08'52.26"N / 29°35'57.11"E); (3) ruderal grassland in the S of Mandraki Bay, W of the pontoon (F. Médail, obs., 15.10.2025; 36°08'51.54"N / 29°35'50.91"E); and (4) Aghios Georgios islet, NW coast, rocky grassland near the sea (F. Médail, obs. & photo, 16.10.2025; 36°08'58.39"N / 29°36'06.62"E).

***Polygonum paelongum*** Coode & Cullen (*Polygonaceae*)

This very rare species was long known only from the type locality near Antalya (Turkey), but Greuter (1979: 548) specifically examined this taxon that he found on the Cape of Megalos Niftis (NE Megisti) and on several satellite islets (Psomi, Polyfados N & S, Aghios Georgios, Psoradia). This SW Anatolian endemic occurs on rocky maritime coasts, and also in a halophilous and ruderal habitat: It was mentioned in the north-western part of the harbour settlement, along a small coastal canal in November 2010 (Constantinidis 2013). The plants are still present here and were in full bloom in October 2025 (F. Médail, obs. & herbarium, 12.10.2025; 36°09'01.60"N / 29°35'21.36"E). However, the long-term viability of this population is severely compromised by its location within the urban area.

This species is also still present on the Aghios Georgios islet where its conservation status is more adequate (F. Médail, obs., 16.10.2025; 36°08'57.68"N / 29°36'08.67"E).

This taxon is not included in the *Atlas of the Hellenic Flora* (Strid, 2024a), and is considered as “unplaced” by POWO (<https://powo.science.kew.org>). Indeed, the taxonomic identity of these insular populations deserves to be examined through a precise comparative study, given that the phylogenetic studies of this genus have not yet considered this taxon.

***Thliphthisa brevifolia*** (Vent.) P.Caputo & Del Guacchio (= *Asperula brevifolia* Vent.) (*Rubiaceae*)

This perennial species with multi-branched and quadrangular stems is an endemic distributed in SW Anatolia (Prov. Antalya, Mugla, Denizli: from N Milas to Kemer) (Ehrendorfer & Schönbeck-Temesy 1982) which is morphologically close to *Thliphthisa rigida* (Sm.) P.Caputo & Del Guacchio, endemic to Crete, and *Thliphthisa suberosa* (Sm.) P.Caputo & Del Guacchio, endemic to Cyprus (Ehrendorfer 1977).

*T. brevifolia* is known from three islands of the Dodecanese: Rhodes, Simi and Kastellorizo (Strid 2024a: 1259, map 5035). On this latter island, Greuter (1979: 587) mentions three localities and estimates that this taxon is scattered but probably under-recorded. The species appears to be rare on the island, and only one population with few specimens was detected in October 2025 at the top of an inland limestone cliff (ca. 100 m a.s.l.), near the Mt Avlonia (F. Médail, obs. & photo, 15.10.2025; 36°08'39.65"N / 29°36'05.82"E). The shrubs here were clearly chasmophytes and, thanks to this location, they were protected from being grazed by goats which are numerous in this area.

## Vascular flora of the Aghios Georgios islet

The vascular flora of the Aghios Georgios islet inventoried by Greuter (1979) is compared to our inventory of October 2025 (see Electronic Supplementary File 1). If we omit the few purely cultivated plants (notably trees like *Eucalyptus* sp.) located near the restaurant, the checklist established by W. Greuter in April 1974 includes 124 taxa (Greuter 1979).

We have identified 88 taxa, including 25 taxa not observed by W. Greuter. If we combine the two inventories, the flora of this islet sums up to 149 species. This islet therefore has a very high species richness relative to its surface area of only one hectare.

Among the newly reported taxa, the presence of several autumn geophytes (*Colchicum macrophyllum*, *Cyclamen maritimum*, *Drimia aphylla*, *Muscari parviflorum*) on such a small islet is remarkable and quite surprising in view of its small size. Aghios Georgios also shelters a population of the very narrow endemic *Campanula kastellorizana* and of the interesting Aegean chasmophyte *Lactuca acanthifolia*. It exists also a nice population of *Ephedra foeminea* forming dense shrubs found growing on the rocks, while this species is rare and localized on the Kastellorizo island.

Our inventory mentions three xenophytes (*Agave americana*, *Opuntia ficus-indica*, *Oxalis pes-caprae*) becoming naturalized and, at least the first two should be removed from this fragile ecosystem because they are proven invasive species in other Mediterranean areas. There are also several unauthorized dumpsites that are damaging the islet's natural habitats, and a cleanup operation would be advisable.

## Conclusion

Because of its geographical location, the Kastellorizo archipelago exhibits a flora rich in Anatolian elements (Constantinidis 2013). Our recent floristic additions support the high biogeographical value of this island group borne out by the presence of many rare and endemic plant species. This completes and refines the synthesis performed by Constantinidis (2013, Table 1) which summarized the endemic taxa and the west Anatolian elements occurring on Kastellorizo archipelago.

This new assessment shows the occurrence of 18 endemic taxa, 13 endemic to the East Aegean Islands and/or the Lycian biogeographic sector of S. Anatolia: *Arenaria luschanii*, *Ballota glandulosissima*, *Biarum ditschianum*, *Dianthus muglensis*, *Galanthus peshmenii*, *Galium dumosum*, *G. pseudocapitatum*, *Polygonum praelongum*, *Silene echinospermoides*, *S. leptoclada*, *Teucrium montbretii* subsp. *pamphylicum*, *Thliphthisa brevifolia*, *Trigonella carica*; and five very narrow endemic to the Kastellorizo island: *Campanula kastellorizana*, *Cymbalaria paradoxa*, *Ornithogalum sphaerolobum*, *Veronica stamatiadae*, *Vicia davisii*.

Conducting new inventories would be indeed useful, particularly for the flora of the two largest satellite islands (Ro and Strongili) which were studied briefly, and also the islets, in order to better estimate the distribution of species at the archipelago's scale and to analyze species turnover fifty years after the first surveys of Werner Greuter. Due to high value of this flora, it would also be important to develop a global management plan for the conservation of the most rare and restricted plants, and also of the different natural habitats, as human pressure on the island is quite high, especially due to recent military activities.

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