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Topography and Flora of the Satellite Islets surrounding the Maltese Archipelago.

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ABSTRACT

This present study provides a list of flora species encountered during multiple visits to the following locations listed below during 1998-2010. The majority of species are new records to the respective locations. Also the distributions of various species found and a general description on topography of each islet is given.

Keywords: Topography, Flora, Satellite Islets, Maltese Archipelago.

INTRODUCTION

Although the Flora of the Maltese islands has been studied extensively from a taxonomic point of view, yet for most species little is known on their distribution and demographic status. Moreover, restricted or much less accessible areas have been studied with the consequence that few published records are available. Visits to these remote locations started in early 1997 by swimming to most of these sites from nearby land with equipment floating in closed buckets or similar apparatus. In 1999 both authors started collecting data on wildlife of these sites and the present work lists macrophytic flora encountered on these sites during all seasons. Most of which are new records for the locations.

The islands

The Maltese archipelago consists of three main islands, which are Malta, Gozo (Ghawdex) and Comino (Kemuna) and a number of minor islands, islets and rocks. The smaller islets are listed below in Table 1 and appear according to their abbreviation letter in the Maltese archipelago maps **(Fig 1,2 &3).**

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Table 1 – List of satellite islets of the Maltese Islands surveyed in the present study

	English name	**Maltese name**	**Code**
Malta`s nearby islets			
Malta(in Maltese)	Filfola	Filfla	A
	Filflette	Il-Gebla ta'Xutu	B
	Cheirolophus Rock*	Il-Hagra tas-Sajjetta	C
	Devil`s End Rock	Il-Gebla tax-Xifer l-Infern	D
	Xrobb l-Ghagin Rock	It-Taqtiegha	E
	Manoel island, but peninsula since 1750	Il-Gzira ta'Manoel	F
	Ghallis Rocks	II-Gebla ta`Ghallis	G
	Qawra Point or Ta' Fra Ben islet	Il-Ponta/ Ras il- Qawra	H
(marked in map as "Red" Islets/Rocks)	Selmunett Island/ St. Paul's Island	Il-Gzira Ta' San Pawl	I

Comino's nearby islets			
Kemmuna(in Maltese)	Old Battery`s Rock *	Gebla ta` taht il –Batterija	J
	Lantern Point Rock	Gebla Tal-Ponta Rqiqa	K
	Comino Cliff Face Rock/ Pigeon Rock	ll-Gebla ta` taht il-Mazz	L
	Small Blue Lagoon Rock	Hagra Ta' Bejn il-Kmiemen iz-Zghira	M
	Large Blue Lagoon Rock	Il-Hagra Ta' Bejn il-Kmiemen il-Kbira	N
	Ghemieri Rocks	L-iskolli tal-Ghemieri	X
(marked in map as "Green" Islets/Rocks)	Cominotto	Kemunett	O

Gozo`s nearby islets			
Ghawdex(in Maltese)	Barbaganni Rock	Il-Gebla tal- Barbaganni	P
	Halfa Rock	Il-Gebla tal-Halfa	Q
	Hnejja rocks	Gebel tal- Hnejja	R
	Tac-Cawl Rock	Il-Gebla tac-Cawl	S
	Fessej Rock	Il-Gebla tal-Fessej	T
	Fungus Rock/ General's islet	Il-Gebla tal-General	U
	Crocodile Rock and Bear rocks (3 rocks in total)	Il-Gebla tal-Baqra u il-Gebel tal-Orsijiet	V
(marked in map as "Blue" Islets/Rocks)	White Rock~	Gebla tal-Ghar Qawqla	W

*Proposed name by authors since none was available.

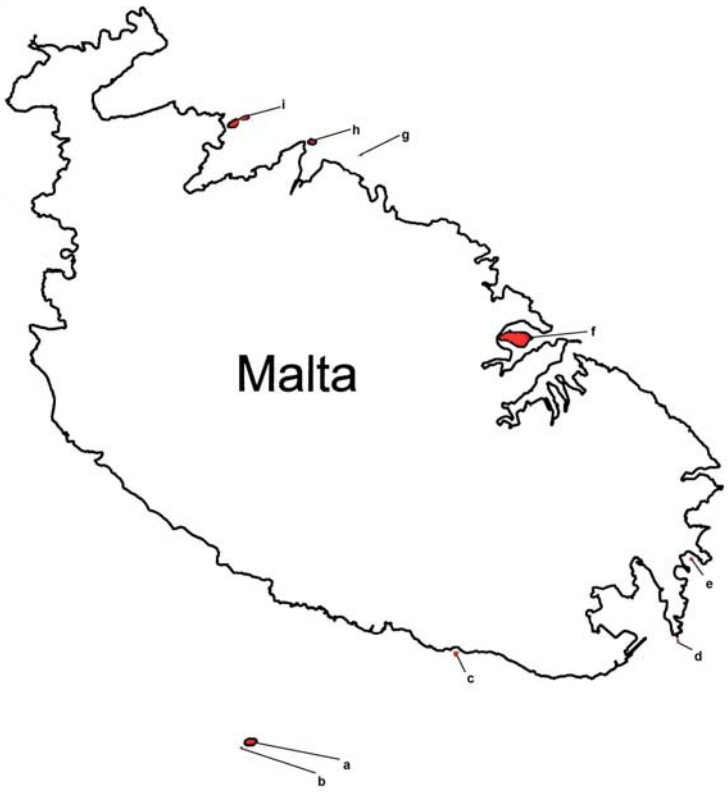

Fig1 Map Showing the Malta and its satellite Islets/Rocks.

Fig 2: Map showing Gozo and its satellite Islets/Rocks.

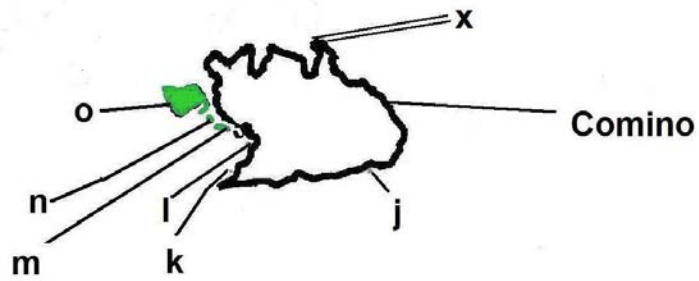

Fig 3: Map shows Comino and its satellite Islets/Rocks (Maps by the authors).

Past Records

Very limited works mention the minor islets. John Borg (1927) records 23 species of flowering plants as occurring on Selmunett Island. A study published on Selmunett Island in 1983 by SSCN records 90 species and since that time the authors only found two new species for the site which were included in a separate work (Sciberras & Sciberras 2009).A children's article by Camilleri in 1990 includes a preliminary list of the flora of Taċ-Ċawl Rock. Cassar and Lanfranco (2000) in their unpublished work give a preliminary list on Halfa islet and Tac-Cawl Rock`s floral list collected by themselves along with Stevens and Schembri. In Lanfranco`s work (2002) a number of floral species are mentioned on several sites in the book on the natural environment of the Maltese islands. In 2007 one of the authors (AS) along with Sdravko Lalov recorded a number of floral species for Fungus Rock.

Present work

The present work aims to bring up to date the latest records known of flora species as most are recorded for the first time from these new locations. It aims also in giving an introduction to most locations studied since some even lack a name and gives a preliminary overview of the topography for most islets/rocks. The flora of Filfola and Manoel Island were not included in this work because they are still under study by the authors. Of the other islets Filflett, Fessej Rock, Għallis Rocks, Ghemieri Rocks Ħnejja Rocks, Bear Rocks, Crocodile Rock , White Rock of Marsalforn, Devil`s End Rock and Xrobb l-Għagin Rock are inundated by wave actions during rough weather so they do not support terrestrial vegetation. Other boulders and stacks do exist independently at sea but clearly show that do not support terrestrial life for the same reason.

Methods of Observation.

Every location was at least visited four times each season from the period of 1998- 2010 except those islets/rocks which require a permit to visit. Those were visited only in the available restricted period. One example of the latter is Fungus Rock. The location was generally divided in virtual transects to facilitate counting of species and individuals. Also species were photographed and identification after performed by the authors was generally consulted afterwards by other local botanists.

Flora on sites

Table 2 gives the list of species reported at each location in the present study.

Table 2 – List of floral species from satellite islets sampled

Note: each letter represents the location that follows
C: Cheirolophus Rock; H: Qawra Point; J: Old Battery`s Rock; K: Lantern Point Rock; L: Comino Cliff Face Rock/ Pigeon Rock; N: Large Blue Lagoon Rock; M: Small Blue Lagoon Rock; 0: Cominotto; P: Barbaganni Rock; Q: Halfa Rock; S: Tac-Cawl Rock; U: Fungus Rock.

*=species observed by present authors
*?= species observed by others but not observed by the authors and their presence is considered as doubtful or possibly extinct from site.

	The islets											
Species	C	H	J	K	L	N	M	O	P	Q	S	U
Allium commutatum											*?	*
Allium lojaconoi										*	*?	
Allium melitense										*?	*	
Anacamptis pyramidalis								*				
Anacamptis urvilleana										*?		
Anagallis arvensis								*				
Anthemis urvilleana		*						*				*
Anthyllis hermanniae					*			*				
Anthyllis vulneraria								*				
Arthrocnemum macrostachyum,		*				*	*			*		*
Atractylis gummifera								*				
Asparagus aphyllus		*			*	*	*	*		*	*	*
Asphodelus aestivus										*	*	
Asteraceae sp.										*		
Blackstonia perfoliata								*				
Bituminaria bituminosa								*				
Brachypodium retusum								*				
Bromus madritensis										*?	*?	
Capparis spinosa subsp. *Rupestris*										*?	*?	
Capparis orientalis					*	*	*	*		*	*	*
Carlina involucrata										*	*	
Cheirolophus crassifolius	*											
Cremnophyton lanfrancoi												*
Cichorium spinosum											*	
Crithmum maritimum	*	*						*			*	
Crucianella rupestris		*			*	*		*		*	*	
Convolvulus althaeoides								*				
Convolvulus oleifolius						*		*		*	*	
Cynara cardunculus								*				
Cynomorium coccineum						*						*
Darniella melitensis	*				*	*	*	*			*	*
Daucus carota	*				*	*	*	*			*	*
Desmazeria pignattii					*						*	*
Dittrichia viscose								*				
Echium parviflorum										*?		
Euphorbia dendroides								*?				
Euphorbia melitensis								*			*?	
Euphorbia pinea								*			*	
Ferula communis								*			*	
Ficus carica								*				
Foeniculum vulgare											*?	

Frankenia hirsuta		*										
Galactites tomentosa								*			*	
Gynandriris sisirynchium		*								*	*?	
Helichrysum melitense												*
Hypercium aegypticum						*		*			*	*
Inula crithmoides	*	*	*	*	*	*	*	*	*	*	*	*
Lagurus ovatus											*	
Lavatera arborea (Malva dendromorpha)							*					*
Limonium melitense		*		*	*	*		*			*	*
Limonium virgatum	*	*										*
Linaria pseudolaxiflora								*?				*
Linum strictum								*				
Linum trigynum								*				
Lobularia maritime					*							
Lotus cytisoides		*								*	*	*
Lygeum spartum							*			*	*	
Matthiola incana subsp. *Melitensis*					*							*
Mesembryanthemum nodiflorum												*
Opuntia sp.											*?	
Ornithogalum arabicum								*				
Orobanche sp.												*
Pallenis spinosa								*		*?		
Parapholis filiformis		*										
Periploca angustifolia								*				
Phagnalon graecum subsp. *Ginzbergeri*								*		*	*?	
Pistacia lentiscus					*			*		*	*?	
Plantago coronopus		*										
Plantago lagopus										*?		
Prasium majus										*		
Rostraria cristata											*	
Rhodsaline geniculata								*				
Ruta chalepensis								*				
Scorpiurus maricatus								*				
Sedum caeruleum											*?	
Sedum litoreum											*?	
Senecio bicolour						*		*			*	
Senecio leucanthemifolius					*							*
Silene sedoides					*					*	*	*
Sporobolus pungens		*										
Solanum villosum										*		
Sonchus tenerrimus											*?	*
Sonchus oleraceus												*
Teucrium fruticans								*		*		
Thymbra capitata							*	*		*	*?	
Trachynia distachya										*?	*?	
Trifolium stellatum								*				
Urginea pancration								*		*	*?	
Valantia muralis								*			*?	
Total number of species for each location observed	6	14	1	2	14	12	9	44	1	21	24	25

Table 3: Topographical measures and geology of the islets and rocks

Name of the islet/rock	Code	Rank by area	Height (m)	Width (m) West-East orientation	Length (m) North-South orientation	Distance from them mainland (m)	Topographical inclination	Surface Geology	Soils
Manoel Island	F	1	~40	1,005	375	0	South-east to North-west	Globigerina Limestone	Disturbed soil
St. Paul's Island	I	2	>25	850	>150	80	North to South	Upper Coralline	Terra Rossa and Xerorendzina
Filfla	A	4	>30	125	350	4,700	West to East	Upper Coralline	Terra Rossa
Ta'Fra Ben/Qawra point	H	5	8	300	140	5	North to South	Lower Coralline	Terra Rossa
Filflett	B	12	6	32	90	4,800 (102m away from Filfla)	West to East	Upper Coralline	/
Cheirolophus Rock	C	21	12	10	17	20	South to North	Lower Carolline	/
Devil's Rock	D	14	3-4	28	45	40	East to West	Globigerina Limestone	/
Xrobb l-Ghagin Rock	E	13	4	65	34	46	North to South	Globigerina Limestone	/
Ghallis Rocks	F	9	0.2-0.3	155	40 -60	175	/	Lower Coralline	/
Cominotto	O	3	>20	500	~200	125	South to North	Upper Coralline	Terra Rossa
Large Blue Lagoon Rock	M	6	20	170	57	50	South to North	Upper Coralline	Terra Rossa
Small Blue Lagoon Rock	N	11	18	27	70	110	West to East	Upper Coralline	Terra Rossa
Pigeon Rock	L	15	20	20	45	20	East to West	Upper Coralline	Inglin complex
Battery Rock	J	22	6-7	18	9	4	East to West	Upper Coralline	Terra Rossa
Lantern Rock	K	23	8	7	17	30	/	Upper Coralline	/
Ghemieri Rocks (3 rocks)	X	19	6, 1, 2	14,14,10	19, 20, 38	10,82, 30	/	Upper Coralline	/
Halfa Rock	Q	8	> 15	95	50	70	North to South, West to East	Upper Coralline	Terra Rossa
Tac-Cawl Rock	S	10	18	88	34	25 (periodically connected to the mainland by an isthmus of limestone rubble	North to South East to West	Upper Coralline	Terra Rossa
Barbaganni Rock	P	18	5	13	25	20	South to North	Upper Coralline	/
Hnejja rock	R	20	2	33	7	52	/	Upper Coralline	/
Fungus Rock	U	7	>40	77	124	52	West to East	Lower Coralline	Terra Rossa
Fessej Rock	T	14	6 -8	45	28	150	West to East	Upper Coralline	/
Crocodile Rock	V	24	1	7	10	195	/	Lower Coralline	/
Big Bear Rock	V	16	3 -4	21	28	26	South to North	Lower Coralline	/
White Rock of Marsalforn	W	17	5-6	20	20	8	West to East	Globigerina Limestone	/

Floral distributions

What follows is a general overview of the topography of each islet/rock including general notes on some of the floral distribution.

Malta`s islet archipelago:

Qawra Point or Ta' Fra Ben islet (Il-Ponta jew Ras il- Qawra)

After Selmunett, ta' Fra Ben is the second largest islet along the North eastern coast of mainland Malta. It is also the closest islet to the mainland. The western coast of the islet is littered with small boulders, while much of the vegetation occurs in the middle part of the islet. Unique to ta' Fra Ben islet, a small collapsed sea cave occurs as a big hole in the middle of the islet. *Arthrocnemum macrostachyum* occurs mainly on the eastern and northern sides of this islet, where almost only this species occurs. *Anthemis urvilleana*, *Inula crithmoides, Lotus cystisoides* and both *Limonium* sp. dominate the middle area of the islet. The rare *Sporbolus pungens* occurs in isolated patches of soil.

Cheirolophus Rock (Hagra tas-Sajjetta)

This small islet is roughly 9 to 12m high at its highest point. Vegetation only occurs 8m high upwards, where the lowest point where vegetation occurs is on the south face of the islet. The species occurring at the lowest points are *Darniella melitensis* and *Crithmum maritimum*. The islet has two slopes, one is the south, which is the most steep and sparse with vegetation, and the other slope, which is facing the nearby mainland cliff, has a gentler inclination, much wider, and filled with most of the vegetation occur on it. The gentler inclined wider plateau is most protected from sea sprays and large waves, thus allowing it to have much of the vegetation. The islet is dominated by *Cheirolophus crassifolius,* followed by *Inula crithmoides, Limonium virgatum* and *Darniella melitensis*, and the least common species on this islet are *Crithmum maritimum* and *Daucus carota.* Even though few species are able to live on this small islet, this offshore large boulder is the only uninhabited islet in the Maltese Islands which has *Cheirolophus crassifolius* inhabiting it. This rock is ecologically important for this species because the adjacent cliffs are sparsely inhabited by this endemic plant.

Selmunett Island/ St. Paul's Island (Il-Gzira/Gzejjer Ta' San Pawl)

Both topography and flora were published in previous works. A total of 92 species of plants were recorded from the Island (Borg, 1927, Lanfranco, 1983, Sciberras & Sciberras 2009) so these were not listed in this present work. Since 2004 *Sedum sediforme* was noted in very small numbers in 3 forms/varieties. *Hyoscyamus albus* and *Parietaria judaica* were found but their distribution is restricted to only one cave of the island. *Agave sislana,Agave americana* and *Opuntia stricta* are on the increase especially the latter species. *Opuntia ficus-indica* was recorded (Lanfranco, 1983) but searches for the species proved fruitless. In 2010 for the first time *Pancratium maritimum* was noted to occur by the authors and Luca Pisani. All these species noted above were not recorded in previous lists.

Comino`s islet archipelago

Old Battery's Rock (Gebla ta` taht il –Batterija)

This small rock is situated on the southeast of Comino under the old battery it is the second smallest rock of Comino. Remnant soil exists on the islet which is inundated by water wave action during rough weather. Till 2010 the flora of the islet consisted of 22 individuals of *Inula crithmoides* .

Lantern Point Rock (Gebla Tal-Ponta Rqiqa)

Lantern Rock it is slightly smaller than Old Battery's Rock, it supports very little vegetation, only two species, *Limonium melitense* and *Inula crithmoides*. It is a large boulder of not more than 7 m high, with another small boulder lying on top of it.

Comino Cliff Face Rock/ Pigeon Rock/Ta' Taht il-Mazz Rock(ll-Gebla ta' Taht il-Mazz)

Ta' Taht il-Mazz rock is the fourth largest islet near Comino. The islet is very steep, vertical sheer cliffs on its east side facing the western cliffs of Comino, while its western is slightly less steep, but still sheer. The majority of species of plants occur on its west side and upper half of it, while only one species inhabits its east side. Ta' Taht il-Mazz Rock is a new location for *Matthiola incana* subsp. *melitensis*, and it seems to be frequent and widespread on this islet. The nearby cliffs of Comino also host the latter species (Sciberras & Sciberras 2009). *Inula crithmoides* is a dominant species on the eastern face of the islet, while *Darniella melitensis* is dominant on the western cliff face of the islet. *Daucus carota* and *Limonium melitensis* are also dominant, but on a lesser extent. *Anthyllis hermanniae* and *Pistacia lentiscus* are rare on the islet. No soil exists on the rock, vegetation is growing on the debris (the accumulating debris) and in rough weather the lower area is inundated by wave action.

On Comino`s archipelago it was recorded that *Matthiola incana* subsp. *melitensis* was present at Taht il- Mazz cliffs. (Sciberras & Sciberras 2009). At that time 5 specimens were recorded just opposite of Pigeon Rock. At present, the authors also wish to record that since the publication, specimens of this species were sighted in a floristic survey carried out 6-12/iii/2010 along all the cliffs of Taht il-Mazz up to a location known as Tal- Ponta l-Irqiqa where the population is more numerous.

Small Blue Lagoon Rock (Il-Hagra Ta'Bejn il-Kmiemen iz-Zghira)

Situated between Large Blue Lagoon and Cominotto, the Small Blue Lagoon Rock is the third largest islet of Comino. Most vegetation also occurs on its upper half. *Arthrocnemum macrostachyum* and *Daucus carota* are the dominant species all over the islet. *Lygeum spartum* entirely covers a small patch of soil. *Lavatera arborea (Malva dendromorpha)*, with only four specimens, barely survives near the *Lygeum spartum* and is only present on this islet in Comino`s archipelago.

Large Blue Lagoon Rock (Il-Hagra Ta' Bejn il-Kmiemen il-Kbira)

Large Blue Lagoon Rock is second largest islet of Comino. The islet has one slope, which is slightly steeper than that of Small Blue Lagoon Rock. The south perimeter is dominated by cliffs, except for a sizeable sea cave on its eastern side, which goes right through the islet. Its topographic landscape shows that it used to form part of the collapsed western valley of Comino. The upper half is inhabited by vegetation. *Hypericium aegypticum* is the dominant species all over the islet, while *Daucus carota* is dominant on the west side of the islet. Some patches are dominated by *Convolvulus oleifolius.* Only two specimens of *Darniella melitensis* were found on the highest point of the islet, while only one specimen of *Arthrocnemum macrostachyum* was found on the lowest point on the western side of the islet. *Senecio bicolor* is also rare on this islet.

Cominotto (Kemunett)

By far, Cominotto is the largest islet near Comino, with 9.9 ha; it is the second largest uninhabited island of Malta. The island has an S-shaped topographical orientation. Cominotto also has a similar altitude of the other near-by islets on the south east of the island. Cliffs dominate the south coast, while a peninsula, larger than Small Blue Lagoon Rock, is connected on the south east of Cominotto. Cominotto has three slopes, east to west from its highest point to its sandy beach and near by coast, south to north and west to east from the highest point too. *Thymbra capitata, Convolvulus oleifolius, Teucrium fruticans, Brachypodium retusum* and *Anthyllis hermanniae* are dominant species on the eastern side of the island, especially facing Comino. *Euphorbia melitensis*, and *Pistacia lentiscus* are dominant on the highest point of the island. *Darniella melitensis* is dominant on the south cliffs. *Euphorbia melitensis* is also dominant on the northwest of the island. In winter, several annual species dominate the island, such as *Convolvulus althaeoides, Anthyllis vulneraria, Linum strictum, Linum trigynum,* and *Galactites tomentosa* in the disturbed patches of the island. *Phagnalon graecum* subsp. *ginzbergeri* is only present in the peninsula of the island. *Euphorbia dendroides* was noted during a field trip in 1991 (Lanfranco pers.comm.) and recorded (Lanfranco, 2002) but searches for the species by the present authors proved fruitless.

Gozo`s islet archipelago

Barbaganni Rock (Il-Gebla tal- Barbaganni)

Barbaganni Rock is the smallest islet with vegetation near Gozo.. No soil exists on the islet which is inundated by water wave action during rough weather. As of 2010 the flora of the islet consisted of only 14 individuals of *Inula crithmoides*.

Halfa Rock (Il-Gebla tal-Halfa)

Halfa Rock is the second largest islet of Gozo. Unique to the islet is a round brackish water rock pool just 2m above sea level, possibly man made due to its perfectly round shape. The brackish pool is 4 to 5m deep. There is also an underground fresh water system which emerges from a small cave/tunnel just outside the mouth of the brackish pool on the opposite side of the sea and this is what makes the water brackish ie; the fresh water from the floor of the cave and the sea spray from the nearby sea. Most of the vegetation occurs on the western area of the islet, including the west cliff side. *Crucianella rupestris* is dominant on the western part of the islet while *Anthrocnemum macrostachyum* is dominant on the eastern side on the islet. *Lygeum spartum* and *Convolvulus oleifolius* are mainly dominant between the highest point and down to middle of the islet. *Thymbra capitata* and *Teucrium fruticans* are dominant on the west cliff side of the islet. *Allium melitense, Anacamptis urvilleana, Bromus madritensis, Capparis spinosa* subsp*. rupestris, Echium parviflorum, Pallenis spinosa ,Plantago lagopus, Trachynia distachya* and *Urginea pancration* were recorded by Cassar and Lanfranco (2000) in their unpublished work, but were not encountered by the authors. A small group of plants belonging to the family Asteraceae were discovered in 2001 and a few cuttings were taken for study. Further visits to the islet proved fruitless in finding the individual plants or new ones, the studies on the taxonomy of the species are still underway and this form still thrives in cultivation in the authors` collections.

Tac-Cawl Rock (Il-Gebla tac-Cawl)

Tac-Cawl Rock is the third largest islet, because it has a smaller surface area than that of Halfa Rock. Tac-Cawl Rock is also the closest islet from the mainland. Moreover, the entire perimeter of this islet is surrounded by cliffs. The altitude is similar to that of Halfa Rock. The vegetation is found throughout the islet, but it is denser on the east side. Vegetation is sparse on its cliffs. Most shrubby species on this islet tend to be equally distributed and equally dominant. *Lygeum spartum* and *Asphodelus aestivus* cover a major area of its plateau towards the east, while down the slope towards the west of the islet, *Crithmum maritimum* is the dominant species. On the other hand *Cichorium spinosum* seemed pretty rare here, as only two specimens of this species where only seen. While on Halfa *Crucianella rupestrisis* common, here it is very rare and represented by less than a dozen specimens. *Opuntia* sp.*, Thymbra capitata*, *Euphorbia melitensis* and *Foeniculum vulgare* were recorded (Camilleri, 1990) but searches for these species proved fruitless. *Allium commutatum, Allium lajoconoi, Bromus madritensis, Capparis spinosa* subsp*. rupestris*, *Gynandriris sisirynchium, Pistacia lentiscus, Phagnalon graceum* subsp*. ginzbergeri, Opuntia* sp*. Sedum caeruleum, Sedum litoreum, Sonchus tenerrimus, Trachynia distachya* and *Valantia muralis* were recorded by Cassar and Lanfranco (2000) in their unpublished work, but were not encountered by the authors.

Fungus Rock or General' Islet (Gebla tal-General)

Fungus Rock is the largest islet near Gozo, with an area of 0.7 ha. Fungus Rock is one of the highest three islets in the Maltese archipelago, along with Filfla and Selmunett. Overall, Fungus Rock is the fifth largest islet in Malta. Fungus rock is well known for its sheer cliffs. Early in its history, Fungus Rock was part of the subsidence structure which was breached, forming the islet in the process. Vegetation mainly occurs on the plateau of the islet, but the east cliff face is dominated by typical cliff plants, while the west is less densely populated. Fungus rock holds one of the richest coastal garigues on the archipelago, and is refuge to some endemic species too. In the Dwejra area, *Cremnophyton lanfrancoi* is common on the islet but rare on the near-by cliffs of the mainland. In contrast, *Helichrysum melitense* is sparse on fungus rock, while dominant on the mainland. *Matthiola incana* subsp. *melitensis* is also dominant here, mainly on the middle of the plateau of the islet, while *Anthrocnemum macrostachyum* is dominant on lower altitude. *Cynomorium coccineum* is widespread

on Fungus Rock, but very rare on the mainland. *Darniella melitensis* is abundant on the west cliff face of the islet.

CONCLUSIONS

In this study 80 species of plants were recorded from 12 islets/rocks having the highest number of 43 species on Cominotto and the lowest being Old Battery`s Rock and Barbaganni Rock with 1 species. This is obvious due to the topography and size of the sites. It is very interesting to note that most of these satellite islets have a biodiversity which usually is not that similar to their closest mainland. The main lands are often influenced and modified by mankind, while islets often remain untouched, because they are not easily accessible. The biodiversity of such islets depends on the specializations, adaptations, (such as small or succulent or hairy leaves and growth structure) and natural selection of only the hardiest species to survive in these extreme harsh environments with limited land and soil depth, constant sea spray and the continuous exposition to wind. Location of islet/rock, its topography and size plays an important role in species diversity, number and distribution. species list vary within different authors and this may be because a species maybe mistakenly identified or between different works the population may have gone extinct. Whilst on some sites only few or no other future new observations can be made, others especially the inaccessible ones and those restricted by legislation hold a high potentiality for future discoveries. Schembri *et. al*.(1987) already listed some of the locations mentioned in this work as localities with conservation value even without giving any species for most sites. We hope that the present work and nearby future ones to follow aid in the protection and raise more the value of their conservation status for these sensitive ecological gems.

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