

**Description of a new species and a new subspecies of *Conus***  
**(Mollusca : Prosobranchia : Conidae)**  
**from the Canary Islands.**

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**KEY WORDS:** Gastropoda, Conidae, new species and new subspecies, Canary Islands.

**ABSTRACT.** *Conus guanche* is described from Tenerife, Islas Canarias (Spain). The new species is compared with several species from western Africa, especially with *Conus guinaicus* Hwass in Bruguière, 1792 and *Conus adansonii* Lamarck, 1810. *Conus guanche nitens* is described from Lanzarote (Canary Islands).

**RESUME.** *Conus guanche* est décrit de Ténérife, Iles Canaries (Espagne). La nouvelle espèce est comparée avec plusieurs espèces de l'Ouest Africain, en particulier avec *Conus guinaicus* Hwass in Bruguière, 1792 et *Conus adansonii* Lamarck, 1810. *Conus guanche nitens* est décrit de Lanzarote (Canaries).

## INTRODUCTION.

K. BANDEL and E. WILS (1977) published an interesting article entitled "On *Conus mediterraneus* and *Conus guinaicus*". In this article, the authors presented several populations from Lanzarote, Fuerteventura and Tenerife, as belonging to the species *Conus guinaicus*, and separated convincingly these populations from *C. mediterraneus* Hwass, while they pointed out the reasons why they prefer the name *C. mediterraneus* to *C. ventricolus* (Röding).

In 1990, I collected over 120 specimens of a Canarian species of *Conus*, and compared them with *C. guinaicus* and several other related species. My conclusion was that these populations neither belong to *C. guinaicus*, nor to any other known species.

## *Conus guanche*, spec. nov. (Figs. 3-4-5)

### DESCRIPTION.

Shell moderately elongate, slightly ventricose. Colouration of the background bluish gray. Body whorl smooth and moderately glossy.

Protoconch : like the majority of the *Conus* of a group generally classified in the subgenus *Lautoconus* Monterosato, 1923, the protoconch is nearly always eroded. From the best specimens, it may be deduced a protoconch of intermediate multispiral type.

Spire : postnuclear whorls are from 8 to 9, depending on shell maturity. Spire whorls convex to swollen, this convexity becoming weaker in mature specimens. Suture well marked, underlined with dark-brown, very fine spiral striae, without marked grooves.



Numerous and close radial striae, slightly curved towards the left.

Shoulder : rounded with a very weak subangulation.

Body whorl : sides slightly ventricose tending to become straight towards the anterior half which is slightly concave in juveniles. The basal quarter is covered with 9 to 11 small and close, sometimes duplicated ridges.

Aperture : The lip is sharp, rather thin on its external edge. It is bordered with a narrow (1 to 2 mm) yellowish inner strip. The inside shows a dark reddish or violet-brown dash, becoming paler and tending to bluish-gray towards the back. This brown zone, which covers the inside from the suture to the base is interrupted by two yellowish small spiral bands, localized near the shoulder and the anterior 2/5 of the aperture.

Pattern : The pattern is remarkably constant, showing a very restricted variability. Spire : the background is covered with more or less close radially vermiculate brown dashes. The body whorl shows 2 or 3 wide yellowish-ochre spiral bands, and is ornamented with zigzagging, sometimes more or less triangular, chestnut to blackish-brown blotches, which enlarge towards the wide yellowish bands. Some rather rare specimens show a paler small band around the anterior 2/5.

Periostracum : pale greenish-brown, rather thick but translucent. The shell is generally covered with large and thick chalky concretions.

#### COLOUR OF THE ANIMAL :

The foot is dark gray. Proboscis and siphon are black. The sole of the foot, pale to pinkish gray.

MORPHOMETRIC INDICATIONS : (see tables II to III & graphs I to III).

Average size : 27.55 mm.

Average height of the shell/width ratio : 1.81.

Average weight/height of the shell ratio : 0.103 gr/mm.

Average apical angle (in degrees) : 89°.77.

#### MATERIAL EXAMINED

128 live taken specimens from 17,7 to 38,3 mm, 26 specimens of which, including holotype and paratypes, were retained for the morphometric study.

#### ORIGINAL MATERIAL

Holotype : 34.0 x 18.2 mm

Paratype n° 1 : 26.6 x 14.8 mm

Paratype n° 2 : 29.8 x 15.8 mm

Paratype n° 3 : 31.0 x 17.9 mm

Paratype n° 4 : 26.2 x 14.3 mm

Paratypes n° 5 to 10 from 27.9 to 38.5 mm.

Holotype and paratype n° 1 are deposited in the Museum National d'Histoire Naturelle (M.N.H.N.) in Paris. Paratype n° 2 Museo Insular de Ciencias Naturales, Santa Cruz de Tenerife, Canarias. Paratype n° 3 Museum d'Histoire Naturelle in Geneva n° MNHG 993/101, n° 4 Zoölogisch Museum in Amsterdam, n° ZMA Moll.3.93.011. Paratypes n° 5 to 10 in authors collection.

#### TYPE LOCALITY

Punta Blanca, about 8 km southern of Los Gigantes, west coast of Tenerife, Canary Islands, between rocks at 0,30 to 2,50 meters depth.

#### DISTRIBUTION

*Conus guanche* seems to be endemic to the Canary Islands. A population which occurs in Fuerteventura, Lanzarote, Graciosa and Lobos presents a some different taxonomy and is hereunder described as a provisional subspecies. A third population occurring in western Gran Canaria (fig. 9) shows some taxonomical particularities, but needs more researches about its true identity. From extreme Southern Spain (southern of Cadix) to the Mauretania occurs another uncertain population which may be related to *C. guanche*, but its badly known taxonomy, ecology and ethology do not allow any serious conclusion for the moment. Its determination on a specific level and its real relation with *C. guinaicus* need further studies.



## ECOLOGY and ETHOLOGY

*C. guanche* manifests diurnal activity. This activity is submitted to the tide movements, and is practically inexistant during falling or low tide. With the rising tide, the animals begin to leave their refuges (rock crevices) and to get to the top of rocks which are covered of sea grass. They are vermivorous (polychaetes). The Canarian coasts (volcanic substratum are subjected to the assaults of occasional rough sea, which explains the rather bad shell conditions of a shallow waters species.

## ETYMOLOGY

*Conus guanche* is named in memory of the GUANCHES (adj. guanche), the first known inhabitants of the Canarias, who had elaborated a very original civilization before destroyed during more than hundred years (XV th. and XVI th. centuries) by the Spanish "Conquistadores".

## DISCUSSION

1) The new species should be compared with some related species. In my introduction I cited BANDEL & WILS 's article. The authors distinguish, at a specific level, *C. guanche* (misidentified as *C. guinaicus* Hwass in Bruguière, 1792) from *C. mediterraneus* Hwass in B., 1792 (= *C. ventricosus* Gmelin, 1791 ?) on the basis of convincing arguments such as very significative differences of the egg capsules, radular teeth, a.s.o. I totally agree with their conclusion.

2) COOMANS, MOOLENBEEK and WILS (1985) misidentified this species as *C. desidiosus* Adams, 1854 (1985 : 165, 191 fig. 634). After examination of the holotype, we conclude that *C. desidiosus* belongs to the *C. mediterraneus* group, and is identical to the specimens of a population from Lampedusa Island (Italy), between Eastern Tunisia and Malta.

3) *C. xicoi* Röckel, 1987 shows some remarkable resemblances in its patterns. However its height/width ratio (between 1.6 and 1.7) is significantly lower than the one of *C. guanche* (from 1.69 to 1.93), which

indicates a stockier shell. The shoulder is flatter, as well as the spire whorls, and subangulated. The spiral grooves on the 4-5 first postnuclear whorls (RÖCKEL, 1987 : 45) are absent in *C. guanche*, and the animal is pinkish. In addition, *C. xicoi*, endemic to Angola is a tropical (warm waters) species, whereas *C. guanche* is a temperate waters one (Cold Canarian Stream).

4) In many places, *C. guinaicus* is sympatric with *C. guanche* (personal observations in Los Christianos, Tenerife and La Santa, Lanzarote). The shells of this species are totally identical to those from Senegal (size, shape, colours, pattern, ecology). A single view of the comparison tables will convince that *C. guinaicus* and *C. guanche* must be separated on a specific level.

5) *C. adansonii* Lamarck, 1810 (= *C. hybridus* Kiener, 1845) another species from Senegal, curiously shows closer characters, but can be easily separated on morphological and morphometric data, as it can be observed in the comparison tables and graphs.

6) *C. tamsianus* Dunker, 1853 also shows some similarities, but is described from Annobon Island (off Gabon). Thus it is a tropical (warm) waters *Conus*, here considered as a subspecies of *C. aemulus* Reeve, 1844.

## *Conus guanche nitens* subspec. nov. (figs. 6-7-8)

### NOTE

*C. guanche nitens* presents some morphological, morphometric and ethological differences. It is here described as a subspecies, which does not exclude a further specific status because it is seemingly sympatric with *C. guanche* s.s. in some localities at Lanzarote. This sympatry, which would exclude a subspecific status, as well as a morphometric treatment based on more numerous specimens, need confirmation and further investigations. Only 8 specimens in good conditions were available for the



morphometric examination which pointed out several more or less significative differences.

### DESCRIPTION

Its apical angle is less obtuse (mean : 80.25° verso 89.79°). Sides, of the spire generally straight to slightly concave (convexe in *C. guanche* s.s.), body whorl less ventricose or nearly straight. The spire is heigher (H/S ratio: 3.94 verso 4.57 - Relative Spire Height : 0.26 verso 0.22). For other morphometric indications, see tables and graphs.

The pattern is quite different : background pale whitish to slightly yellowish gray, covered with wider tawny to nearly orange dashes, less numerous than in *C. guanche* s.s. and often overlined with darker tawnish punctate lines. The yellowish strip observed inside of the aperture of this last here is totally white, and the inner blotch is reddish-brown.

### MATERIAL EXAMINED

14 live taken specimens from 18,8 to 33,1 mm, 8 specimens of which including holotype and paratypes n° 1 and 2 were retained for the morphometric study.

### TYPE MATERIAL

Holotype	26.2 x 13.2 mm
Paratype n° 1	30.5 x 15 mm
Paratype n° 2	22.2 x 12.5 mm

Holotype and paratype n° 1 are deposited in the Museum National d'Histoire Naturelle in Paris. Paratype n° 2 in the author's collection.

### TYPE LOCALITY

Islote de los Ingleses, Arrecife, Lanzarote, Canary Islands, in 0.50 to 1.20 m. depth, by rising tide.

### DISTRIBUTION

*C. guanche nitens* is known from southwestern Fuerteventura, from Lobos Isl., Lanzarote and Graciosa. The populations from Fuerteventura and Lobos are somewhat paler, sometimes without brownish dashes.

### ECOLOGY-ETHOLOGY

*C. guanche nitens* has the same activity and feeding customs, but its habitual refuge is in sandy bottom, at the foot of the volcanic rocks.

### ETYMOLOGY

*nitens* is a Latin adjective (= bright) (Cicero).

### REFERENCES

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- DUNKER, G., 1853 - Index Molluscorum in itinere ad Guineam inferiorem collegit Georgius Tams Med. Dr. Cassel : 28-29, pl. IV fig. 22-23.
- RÖCKEL, D., 1987 - *Conus xicoi*, a new species from Angola. *Publ. Ocas. Soc. Port. Malac*, n° 9 : 45-48 + Pl.



TABLE I : MORPHOLOGICAL COMPARISONS

CHARACTERS	<i>Conus guinaicus</i>	<i>Conus adansonii</i>	<i>Conus guanche</i>	<i>Conus guanche nitens</i>
SPIRE shape	straight to slightly convex in adults	nearly straight.	straight to convex.	straight to slightly concave.
n. of postnuclear whorls	7 to 8.7 ( mean: 7.8)	7.7 to 9.2 ( mean: 8.8)	8 to 9 ( mean: 8.6)	7.6 to 8.8 ( mean: 8.4)
SPIRE WHORLS profile	slightly convex, except the last whorl which is somewhat depressed	slightly convex, last whorl flat in adult shells	convex to bulging, last whorl nearly flat in adult shells	bulging, also as the last whorl, even in adult shells
spiral sculptures	4 to 7 small spiral grooves	2 to 4 spiral grooves	no grooves, replaced by fine and close spiral striae	no grooves, replaced by fine and close spiral striae
radial sculptures	faint, close and curved radial striae	faint, close and curved radial striae	tenuous and very close curved radial striae	ido -
suture	somewhat irregular	linear	linear	linear
SHOULDER	rounded whit a very weak subangulation	rounded, slightly subangulated	rounded	rounded
BODY WHORL surface	smooth to slightly glossy	smooth to slightly glossy	smooth to slightly glossy	smooth to slightly glossy
profile	strongly curved to ventricose	moderately curved and elongate	moderately ventricose, nearly straight in the anterior half	nearly straight below the shoulder curve
sculptures	very faint spiral striae, fine and close axial ones	fine and close axial striae	very fine spiral striae, fine and close axial striae	ido -
basal sculptures	10 to 12 little marked and oblique basal ridges which become nearly invisible in adult specimens, except 4 to 5 ones on the ventral side.	12 to 15 oblique, somewhat granulose basal ridges, often visible only on the ventral side, nearly invisible on the dorsal one.	9 to 11 oblique, often duplicated, more or less flat basal ridges, which remain visible on the dorsal side	ido -



TABLE I : MORPHOLOGICAL COMPARISONS (Continuation)

CHARACTERS	<i>Conus guinaicus</i>	<i>Conus adansonii</i>	<i>Conus guanche</i>	<i>Conus guanche nitens</i>
APERTURE width	broad, widening towards the base	moderately wide, only slightly widening tow. base	moderately wide, doing not enlarge towards the base	ido -
inside colours	reddish-brown blotch, becoming pale bluish gray towards the inside. Two whitish small bands below the shoulder and the midbody	violet-brown blotch, becoming whitish-gray towards the inside. A small whitish band below the shoulder, a wider one towards the midbody	dark reddish to violet-brown blotch, becoming bluish-gray towards the inside. Two small whitish bands below the shoulder and the midbody	reddish-brown blotch becoming whitish towards the inside. A small whitish band below the shoulder, a wider one below the midbody
lip	strong but sharp	strong but sharp	rather thin and sharp	thin and very sharp
inside strip of the lip	pinkish to yellowish-white	whitish, with brown spots	yellowish	whitish
columellar fold	whitish, strong, straight to somewhat twisted	pale beige, small, nearly straight	beige, strong, bulging and slightly curved	whitish, narrow, bulging and slightly curved
"anal" notch	broad, strongly underlined with deep brown, narrowing and strongly curved towards the shoulder	rather broad, underlined with deep brown, enlarging and curved towards the shoulder	rather broad, tinged with violaceous brown, little curved, enlarging towards the shoulder	moderately broad, tinged with darker gray, little curved, not enlarging towards the shoulder
COLOUR PATTERN background	whitish to bluish-gray	bluish to greenish gray, whitish band on the midbody	bluish to greenish gray	pale bluish to yellowish gray
spire	speckled with large brownish or tawny, more or less radially arranged dashes	speckled with small blackish scattered, more or less radially arranged dashes	speckled with small brown to tawny dashes	whitish gray with radially flammulated tawny dashes
spire suture	sometimes underlined with a very fine brownish line	bordered with pale pinkish to tawny shades	strongly underlined with dark blackish-brown	strongly underlined with dark brown
body whorl	highly variable: mostly covered with pale tawny to deep brown dashes, roughly separated by 2 or 3 bands of whitish ones. Some specimens show weak axial flammules	covered with dark brown more or less triangular small dashes, somewhat aligned in spiral lines and axial flammules and separated in two zones by a whitish more or less white spiral band at the midbody	more or less close radially vermiculate or zigzagging brown dashes, of more or less triangular shape. Sometimes a paler small band encircles the midbody.	covered with wider tawny to orange-brown dashes, often overlined with darker tawny punctate lines



TABLE II : MORPHOMETRIC COMPARISONS

		<i>C.guinaicus</i>	<i>C.adansonii</i>	<i>C.guanche</i>	<i>C.g.nitens</i>
<b>H</b> <b>HEIGHT of the SHELL</b>	Minimum	22.3	28.3	18.5	18.8
	Maximum	52.2	48.3	38.3	30.5
	MEAN	39.14	40.03	27.56	23.89
	Standard Deviation	8.89	5.891	5.814	4.416
	Variation Coef.	22.71 %	14.72 %	21.10 %	18.48 %
	Confid.Interval 95%	22.6> <56.9	28.2> <51.8	15.7> <39.2	14.6> < 32.7
<b>LD</b> <b>LARGEST DIAMETER</b>	Minimum	12.3	14.2	9.6	9.8
	Maximum	30	25.9	21.8	15
	Mean	21.99	20.19	15.26	12.5
	Stand.Deviation	5.231	3.212	3.248	2.051
	Variation Coef.	23.7 %	15.94 %	21.27 %	16.41 %
<b>B</b> <b>HEIGHT of BODY WHORL</b>	Minimum	17.4	22.6	13.6	13.9
	Maximum	41.3	38.6	31	20.8
	MEAN	31.9	31.86	21.49	17.61
	Standad Deviation	7.479	4.75	4.846	2.678
	Variat.Coeff.	23.44 %	14.90 %	22.50 %	15.20 %
<b>S</b> <b>HEIGHT of the SPIRE</b>	Minimum	4.36	5.3	4.4	4.3
	Maximum	11.5	10.4	9.1	9.7
	MEAN	7.24	8.17	6.07	6.27
	Stand.Deviation	1.911	1.624	1.3	1.981
	Variation Coef.	26.39 %	19.88 %	21.39 %	31.57 %
<b>AA°</b> <b>APICAL ANGLE °</b>	Minimum	87°	77°	72°	73°
	Maximum	112°	101°	98°	90°
	MEAN	99°	90.4°	89.8°	80.2°
	Stand.Deviation	7.191	6.111	6.947	6.159
	Variation Coef.	7.26 %	6.76 %	7.74 %	7.67 %
	Confid.Interval 95%	84.6> <113.4°	78.2> < 102.6°	75.9> <103.7°	67.9> <92.5°
<b>W</b> <b>WEIGHT</b> <b>(gr)</b>	Minimum	1.3	1.62	1.02	0.75
	Maximum	17.78	12.24	6.95	2.92
	MEAN	7.92	6.21	3.01	1.706
	Stand.Deviation	4.79	2.872	1.67	0.832
	Variation Coef.	60.45 %	46.21 %	55.47 %	48.70 %
<b>PC</b> <b>DEPTH of the</b> <b>PALLEAL CHANNEL</b>	Minimum	1.8	1.9	1.5	1.1
	Maximum	7.8	4.4	3.5	3.2
	MEAN	4.58	3.17	2.74	1.812
	Stand.Deviation	1.486	0.717	0.512	0.775
	Variation Coef.	32.56%	22.62%	18.71%	42.78%
<b>H/LD</b>	Minimum	1.648	1.789	1.693	1.82
	Maximum	1.869	2.15	1.927	2.033
	MEAN	1.786	1.987	1.807	1.906
	Stand.Deviation	0.061	0.087	0.066	0.074
	Variation Coef.	3.42 %	4.36 %	3.63 %	3.87 %



TABLE II : MORPHOMETRIC COMPARISONS (Continuation)

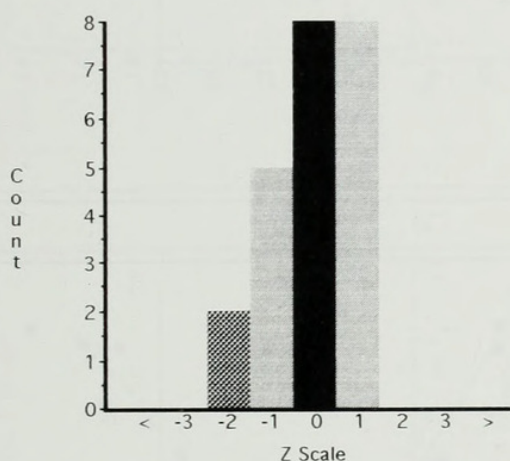
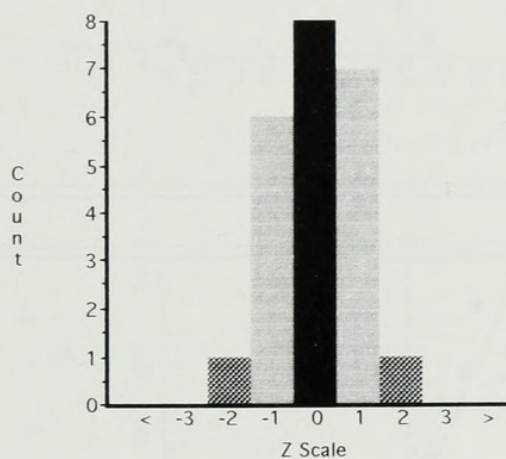
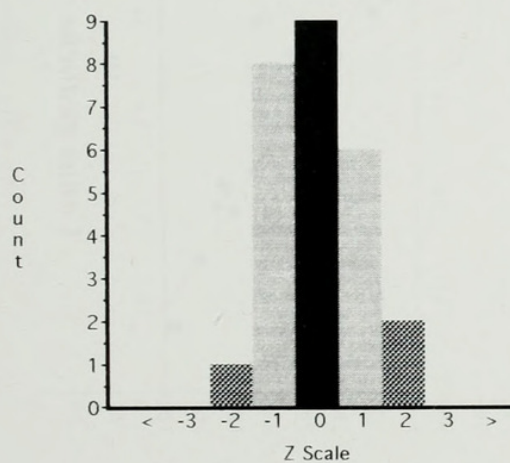
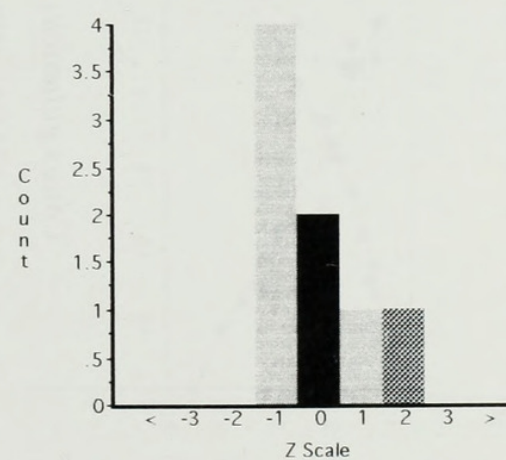
		<i>C.guinaicus</i>	<i>C.adansonii</i>	<i>C.guanche</i>	<i>C.g.nitens</i>
<b>RSH</b> <b>RELATIVE SPIRE</b> <b>HEIGHT</b> <b>(S/H)</b>	Minimum	0.143	0.155	0.167	0.216
	Maximum	0.249	0.245	0.28	0.318
	MEAN	1.186	0.204	0.222	0.258
	Stand.Deviation	0.029	0.025	0.028	0.039
	Variation Coef.	15.61 %	12.07 %	12.56 %	15.11 %
<b>RD</b> <b>RELATIVE DIAMETER</b> <b>of the BODY WHORL</b> <b>(LD/B)</b>	Minimum	0.648	0.59	0.671	0.667
	Maximum	0.747	0.679	0.761	0.757
	MEAN	0.692	0.634	0.713	0.709
	Stand.Deviation	0.024	0.024	0.02	0.027
	Variation Coef.	3.48 %	3.77 %	2.78 %	3.77 %
<b>W/H</b>	Minimum	0.058	0.057	0.055	0.04
	Maximum	0.341	0.254	0.181	0.098
	MEAN	0.185	0.149	0.103	0.068
	Stand.Deviation	0.082	0.052	0.035	0.022
	Variation Coef.	44.28 %	35.0 %	33.96 %	32.44 %
<b>RPE</b> <b>RELATIVE PALLEAL</b> <b>EXPANSION</b> <b>(PC/B)</b>	Minimum	0.103	0.054	0.08	0.074
	Maximum	0.189	0.135	0.198	0.155
	MEAN	0.141	0.1	0.131	0.101
	Stand.Deviation	0.022	0.019	0.028	0.033
	Variation Coef.	15.63 %	19.27 %	21.75 %	33.06 %
<b>RWE</b> <b>RELATIVE WHORL</b> <b>EXPANSION</b> <b>(LD/SD)</b>	Minimum	1.109	1.109	1.103	1.126
	Maximum	1.209	1.21	1.191	1.184
	MEAN	1.174	1.171	1.154	1.155
	Stand.Deviation	0.021	0.02	0.022	0.017
	Variation Coef.	1.83 %	1.72 %	1.89 %	1.44 %
<b>AE</b> <b>APERTURE EXPANSION</b> <b>[(LD-SD)/B]</b>	Minimum	0.065	0.059	0.066	0.079
	Maximum	0.121	0.117	0.118	0.109
	MEAN	0.102	0.093	0.095	0.095
	Stand.Deviation	0.011	0.011	0.011	0.01
	Variation Coef.	10.98 %	12.31 %	11.95 %	10.24 %
<b>RBA °</b> <b>RELATIVE BASAL ANGLE</b> <b>2*[tan-1 [(RSD/2) /B]</b>	Minimum	24.19	23.02	25.91	28.37
	Maximum	38.09	35.09	39.69	38.12
	MEAN	29.88	28.84	31.65	32.59
	Stand.Deviation	3.461	2.735	3.014	3.643
	Variation Coef.	11.58 %	9.48 %	9.52 %	11.18 %
<b>RSA °</b> <b>RELAT.SPIRAL ANGLE</b> <b>[360°-{AA+RBA}] /2</b>	Minimum	109.63	113.55	112.15	119.58
	Maximum	123.67	127.06	128.26	127.83
	MEAN	115.56	120.38	119.29	123.58
	Stand.Deviation	3.586	3.202	3.705	2.455
	Variation Coef.	3.10 %	2.66 %	3.10 %	1.99 %



TABLE III - MORPHOMETRIC CORRELATIONS

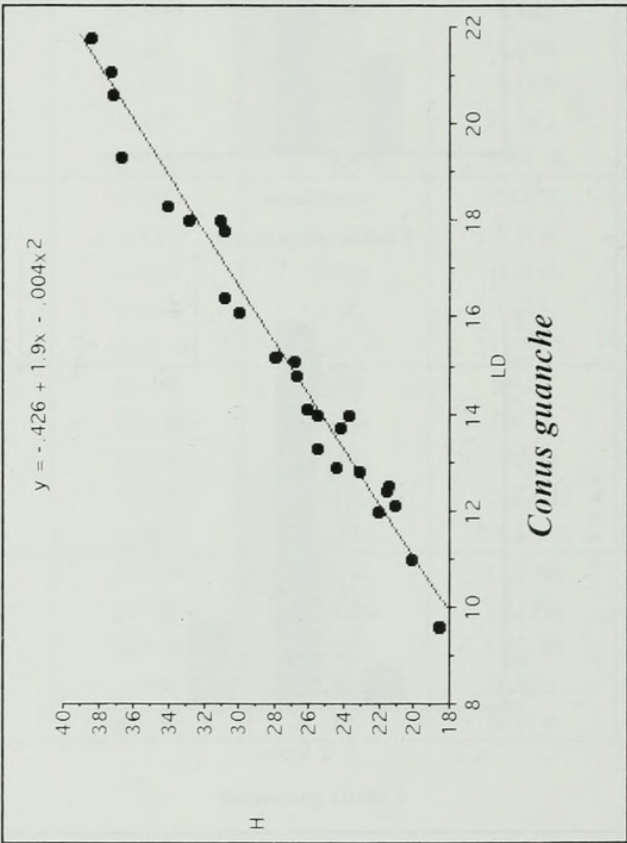
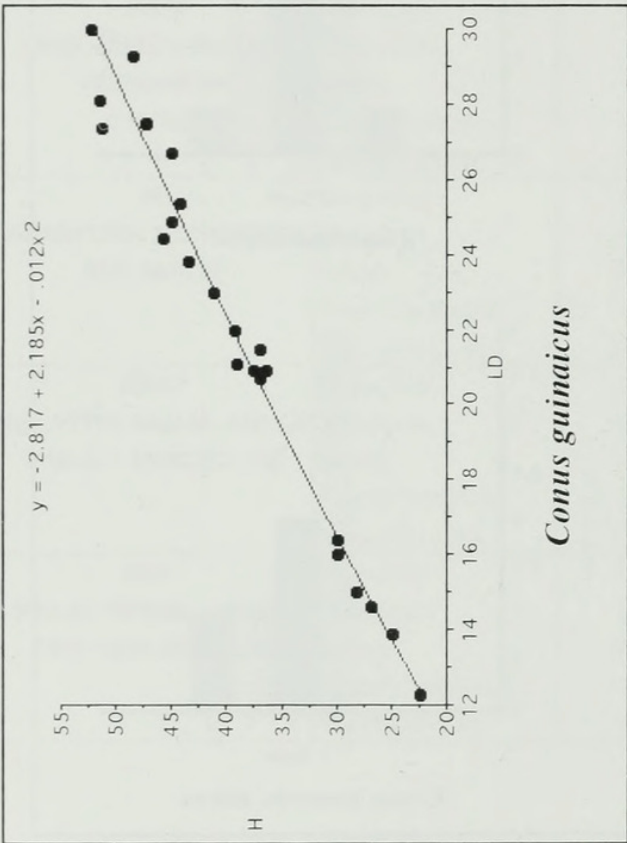
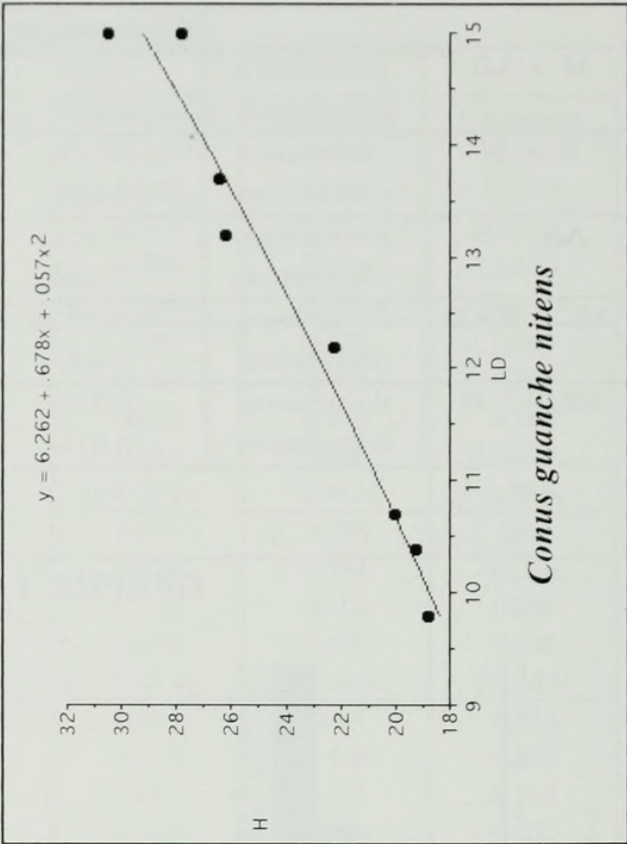
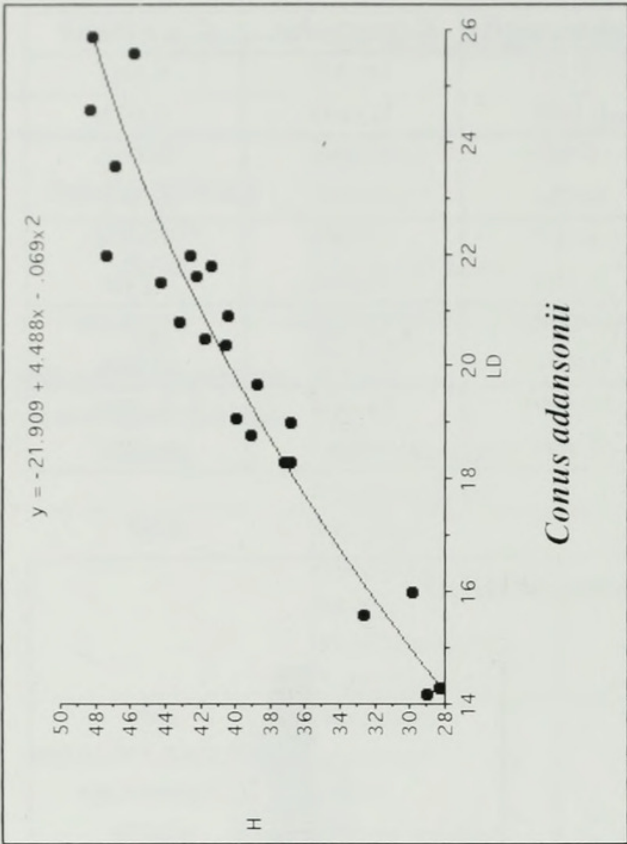
		<i>C.guinaicus</i>	<i>C.adansonii</i>	<i>C.guanche</i>	<i>C.g.nitens</i>
<b>H - LD</b>	covariance	45.91	18.127	18.623	8.861
	correlation	0.987	0.956	0.986	0.978
<b>H - W</b>	covariance	40.15	15.687	9.295	3.603
	correlation	0.956	0.927	0.958	0.981
<b>AA - S</b>	covariance	-6.177	-5.937	-1.087	-10.493
	correlation	-0.449	-0.598	-0.121	-0.86
<b>AE - RWE</b>	covariance	0.000226	0.00022	0.000239	0.00015
	correlation	0.939	0.961	0.973	0.928
<b>RSD - H</b>	covariance	30.987	13.468	14.961	9.529
	correlation	0.911	0.869	0.91	0.942

GRAPHS I - Z Score of H/LD

*Conus guinaicus**Conus adansonii**Conus guanche**Conus guanche nitens*

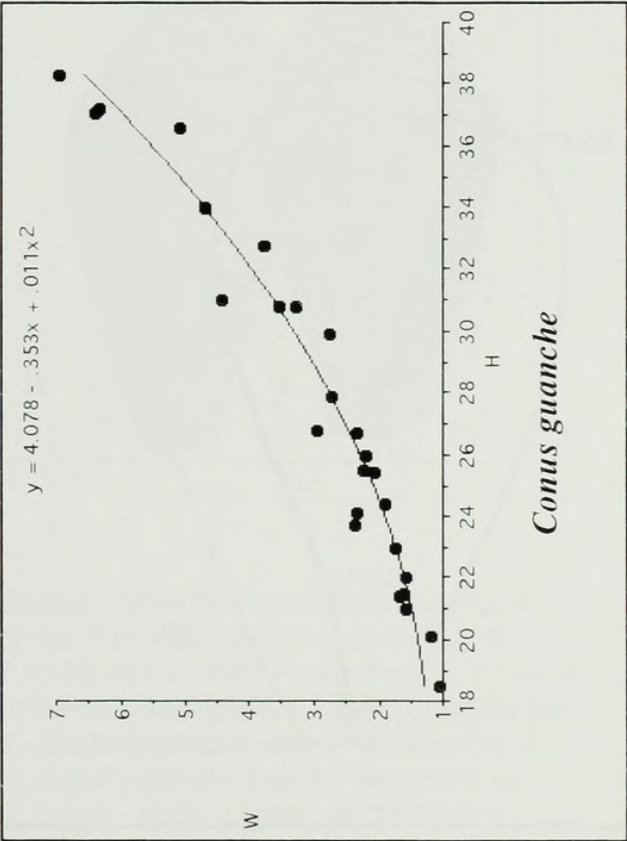
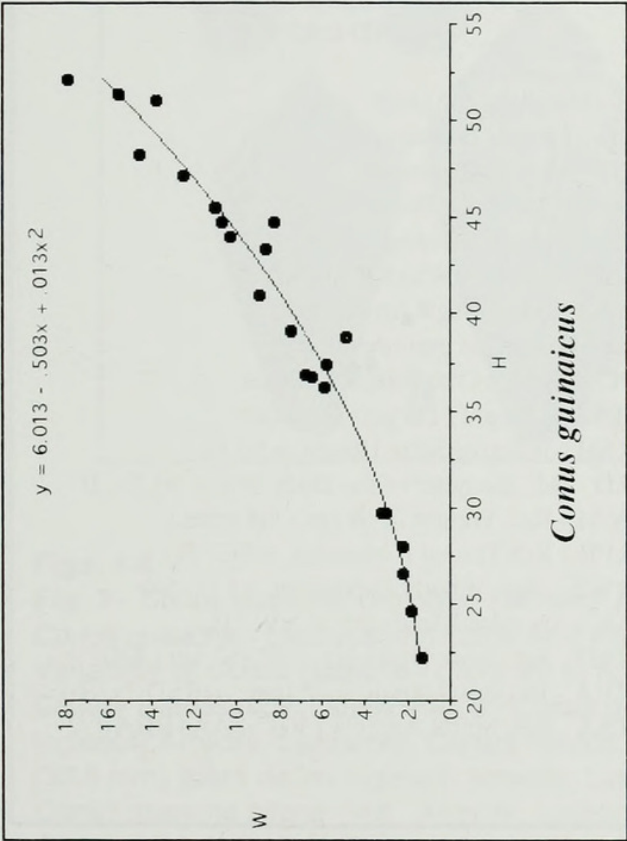
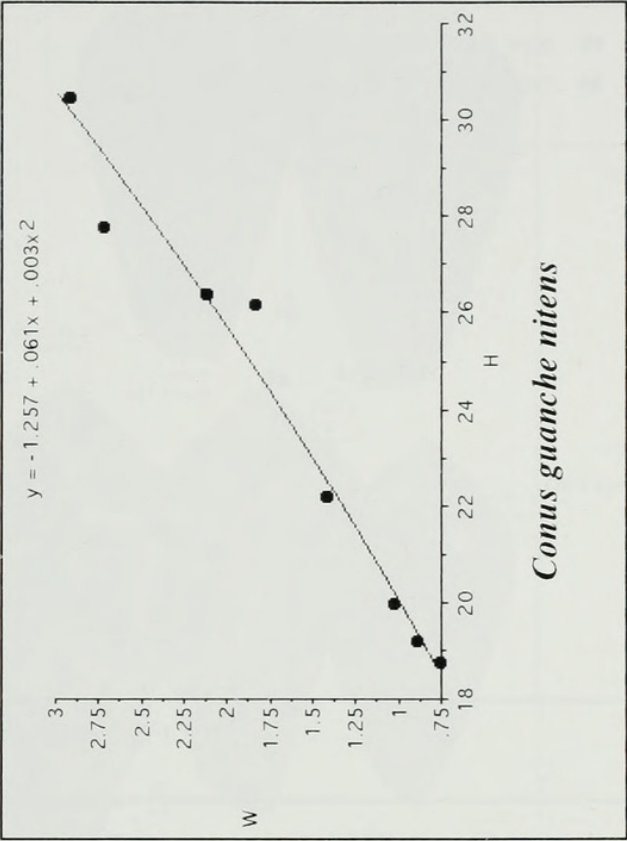
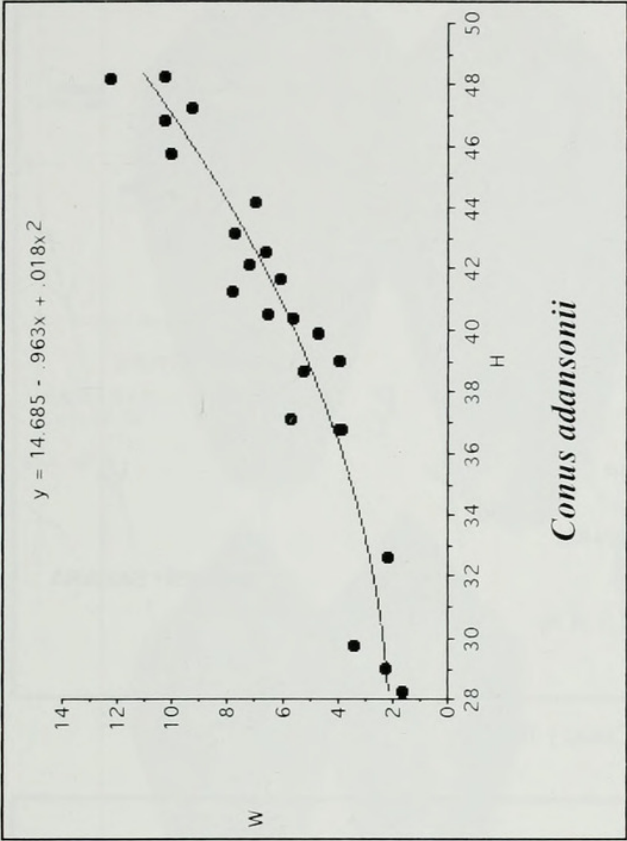


GRAPHS II: POLINOMIAL REGRESSION of H and LD





GRAPHS III: POLINOMIAL REGRESSION of W and H





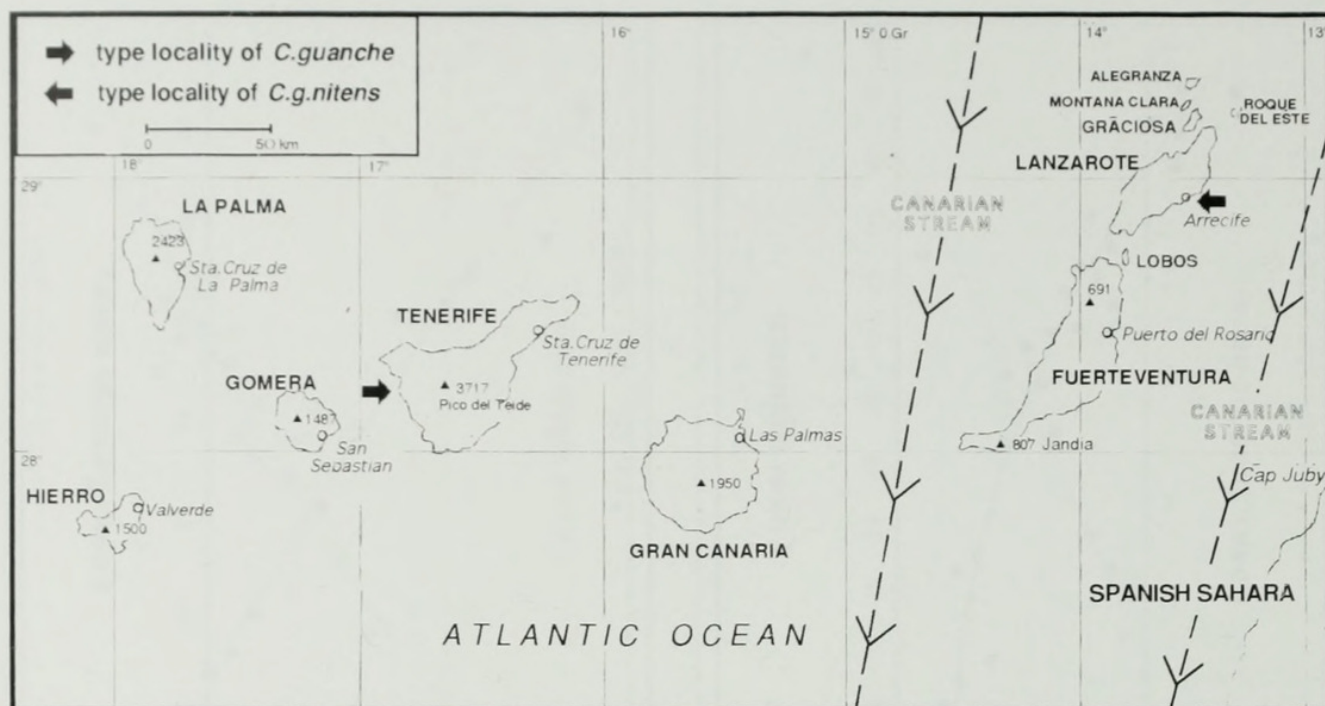
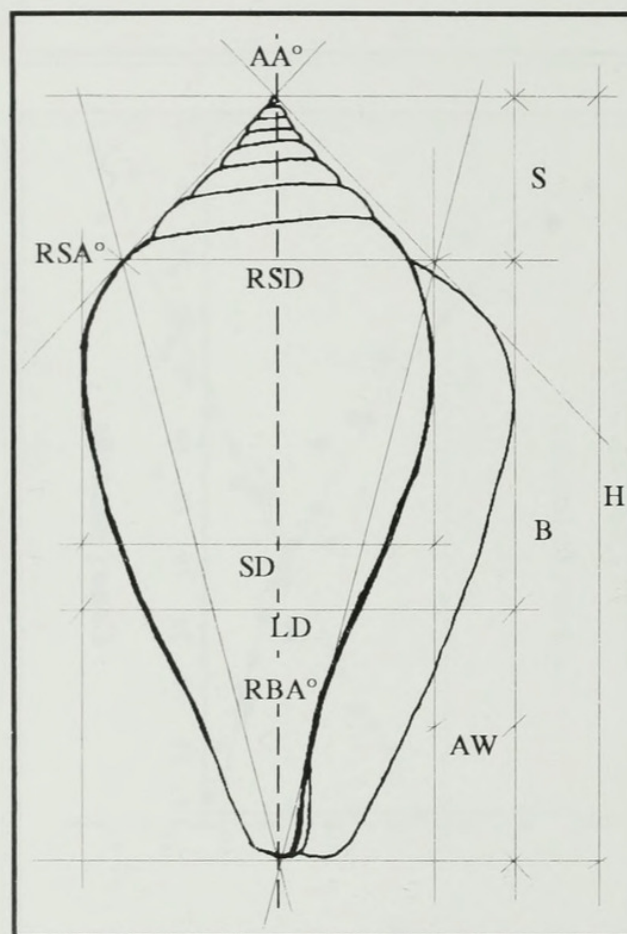
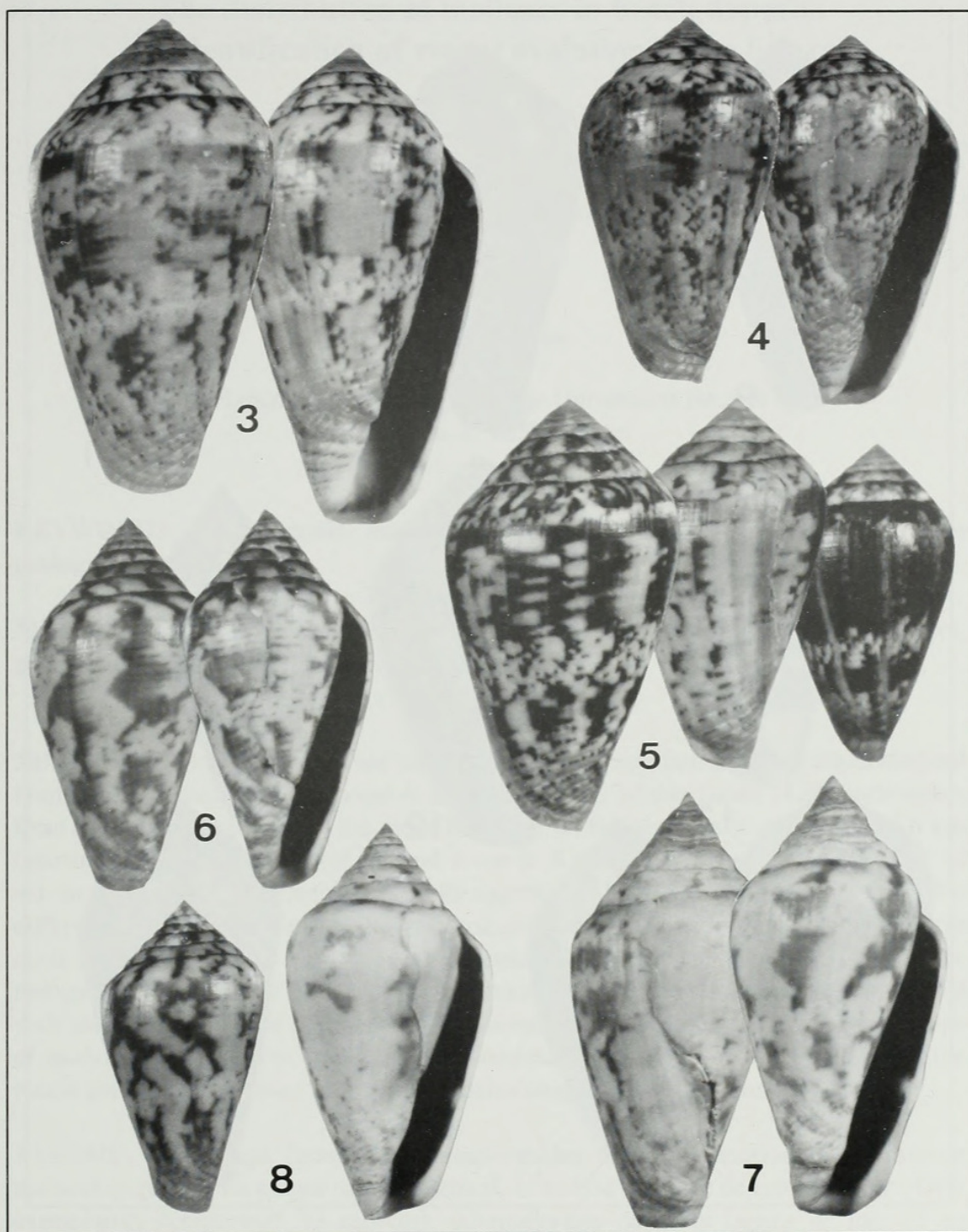


Fig 1 - Map of the Canary Islands

Fig. 2  
MORPHOMETRIC MEASURES  
AND RATIOS

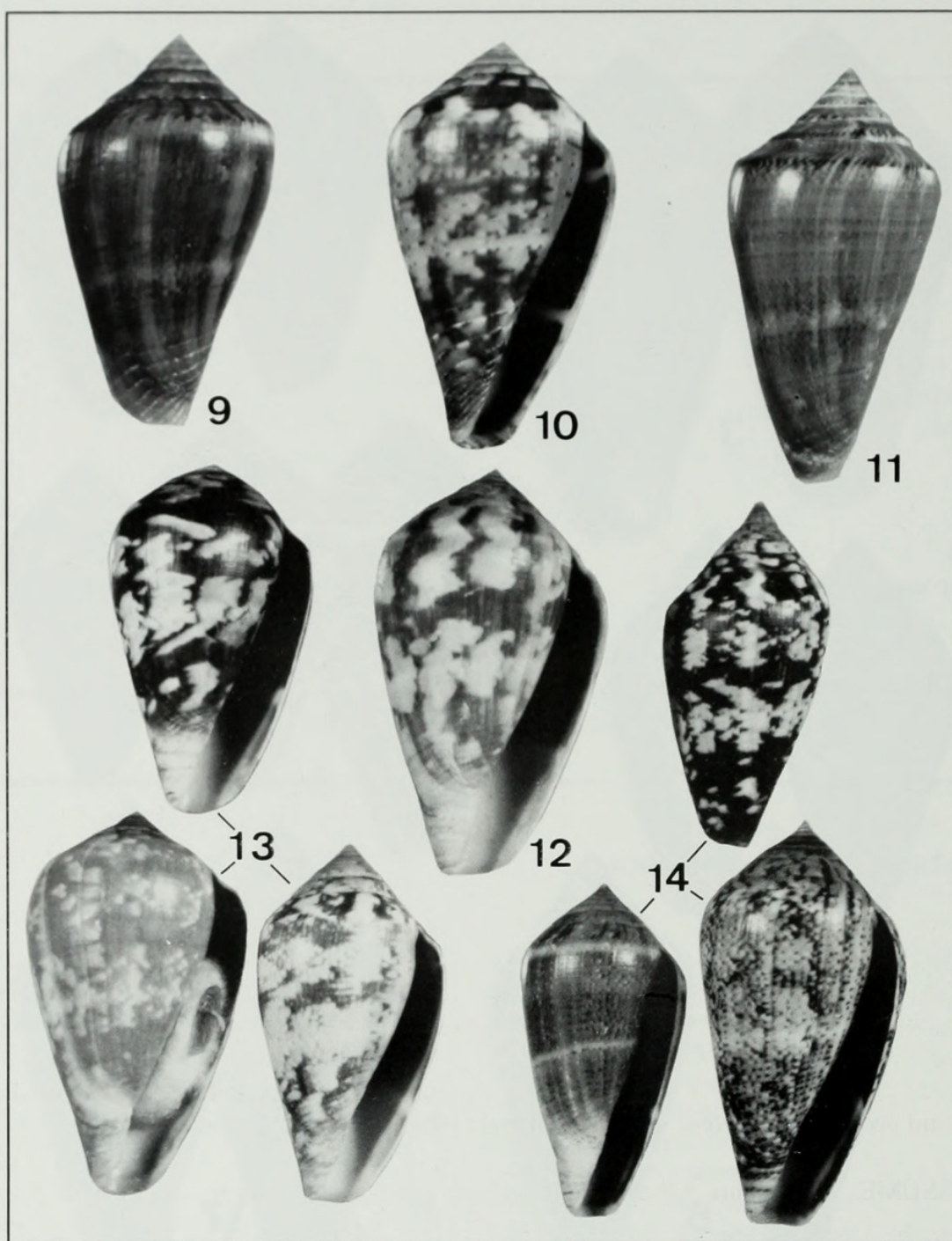
- H - Height of the shell
- LD - Largest Diameter
- SD - Smallest Diameter
- B - Height of the Body Whorl
- S - Height of the spire = H - B
- AW - Aperture Width = LD - SD
- AA - Apical Angle (in degrees)
- W - Weight (in grammes)
- PC - Depth of the Pallical Channel
- H/LD - Height / Largest Diameter
- RSH - Relative Spire Height = S / H
- RD - Rel. diameter of the Body Whorl = LD / B
- W/H - Rel. Weight = W (gr.) / H (mm.)
- RPE - Rel. Pallical Expansion = PC / B
- RWE - Rel. Whorls Expansion = LD / SD
- AE - Aperture Expansion = AW / B
- RSD - Rel. Spire Diameter =  $2 * [S * \tan (AA/2)]$
- RBA - Rel. Basal Angle =  $2 * [\tan^{-1} ((RSD/2) / B)]$
- RSA - Rel. Spiral Angle =  $[360^\circ - (AA + RBA)] / 2$



**Figs. 3-8.**

**Fig. 3** - *Conus guanche* - holotype (34 mm) .Punta Blanca, Tenerife, Canary Islands. **Fig. 4** - *Conus guanche* - paratype n° 1 (26,6 mm) Punta Blanca, Tenerife, Canary Islands. **Fig. 5** - Variability of *Conus guanche* - (from left to right : 27,9 - 24 and 21 mm) Punta Blanca, Tenerife, Canary Islands (coll. Lauer). **Fig. 6** - *Conus guanche nitens* - Holotype (26,2 mm) Isleta de los Ingleses, Arrecife, Lanzarote, Canary Islands. **Fig. 7** - *Conus guanche nitens* - paratype n° 1 (30,5 mm) Isleta de los Ingleses, Arrecife, Lanzarote, Canary Islands. **Fig. 8** - Variability of *Conus guanche nitens* - left : Arrecife, Lanzarote (22,2 mm) - right : Lanzarote (27,8 mm), Canary Islands (coll. Lauer).





**Figs. 9-14.**

**Fig. 9** - *Conus* aff. *guanche* - (18,9 mm) Agaete, Gran Canaria Canary Islands (coll. Lauer). **Fig. 10** - *Conus xicoi* - (22 mm) Angola (coll. Lauer). **Fig. 11** - *Conus* (*mediterraneus* ?) *desidiosus* - (27,4 mm) Lampedusa Island, Italy (off Tunisia) (coll. Lauer). **Fig. 12** - *Conus guinaicus* - (45,5 mm) Tenerife, Canary Islands (coll. Lauer). **Fig. 13** - *Conus guinaicus* - variability - (44,1, 44,9 and 43,6 mm) Petite Côte, Sénégal (coll. Lauer). **Fig. 14** - *Conus adansonii* - variability - (41,6, 40,6 and 48,2 mm) N'Gor, Senegal (coll. Lauer)





1993. "Description of a new species and a new subspecies of *Conus* (Mollusca: Prosobranchia: Conidae) from the Canary Islands." *Apex* 8, 37–50.

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