SOME REMARKS ON THE MEDITERRANEAN SPECIES OF THE GENUS *APLYSINA* (DEMOSPONGIAE, VERONGIDA).

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SYNOPSIS

The study of numerous specimens belonging to the genus *Aplysina* from the North Aegean Sea, illustrated that, although they have been found at different depths, they do not seem to belong to two separate species, as indicated by the bibliographical data . The existence of two separate species of this genus in the Mediterranean Sea should possibly be reexamined.

INTRODUCTION

Two species belonging to the genus *Aplysina* (= *Verongia*) have been described from the Mediterranean Sea : *A. aerophoba* Schmidt, 1862 and *A. cavernicola* (Vacelet, 1959): During a survey on the Demosponges of the North Aegean Sea, numerous specimens belonging to this genus were collected in various biotopes. An attempt was made to classify them into the two species mentioned above. The questions and the problems that arose from this attempt are presented in this paper.

MATERIALS AND METHODS

Thirty-nine specimens were collected from thirty-five sampling stations scattered all along the Greek coasts of the North Aegean Sea (Fig.1). The collection of the specimens was made in depths from 0.5 m to 150 m either by free and SCUBA diving or by dredging. Between depths of 0.5 to 30 m, 56 % of the specimens were collected and the remaining 44 % were taken from 30 to 150 m.

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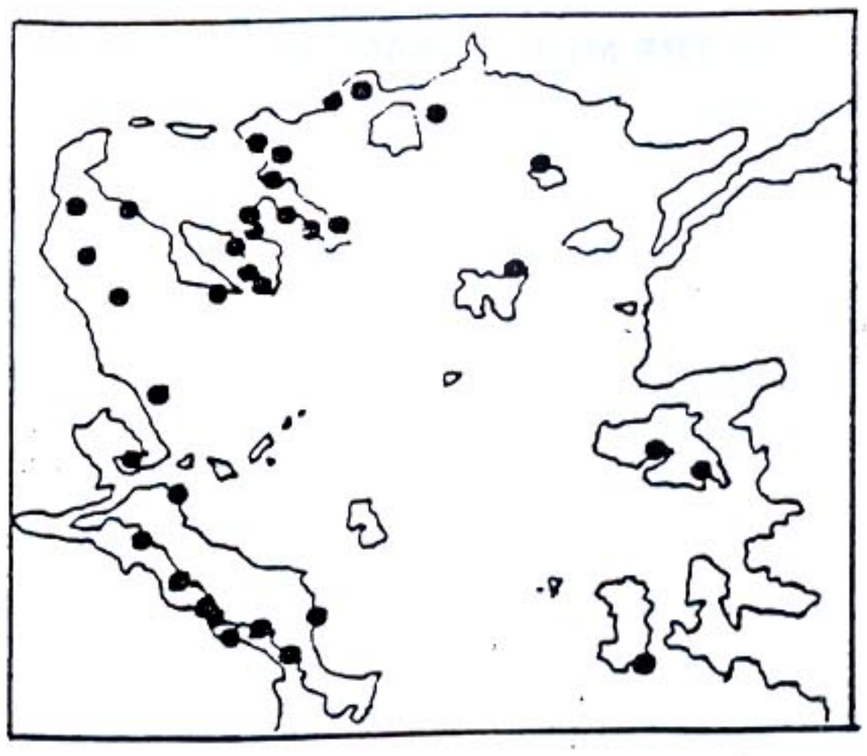

Figure 1 - Map showing the sampling stations in the North Aegean Sea.

RESULTS AND DISCUSSION

In order to identify the specimens Table 1 was constructed. It is based on the main characteristics used by Vacelet (1959) for the distinction of the two species. The ecological characteristics of the two species are based on Wilkinson & Vacelet (1979). It should be pointed out that no differences were found in the spongin skeleton by Vacelet (1959) for the two species..

Careful examination of the 39 specimens collected showed that the morphological characteristics which should distinguish the two species from one another, were neither related to the depth nor the illumination conditions of their habitat. Both in the specimens coming from depths above 30 m and in those collected from depths greater than 30 m we observed the whole range of characteristics for *A. aerophoba* and *A. cavernicola* (see Table 1). Therefore it was concluded that :

1/ The regularity of the general form and especially that of the digitations and the conules varies independently of the depth and the intensity of the light.

2/ The color of the sponges does not show a relationship with depth and illumination. Specimens from shallow depths showed various tones in alcohol between violet and black and the same was observed for the specimens from greater depths. The time needed for the transition of color from yellow to

violet or black was not observed in some of the deeper water specimens. However, it was almost immediate in all the remaining specimens. It should be noted that the presence or absence of cyanobacteria in the specimens was not examined.

Table 1 - The main morphological and ecological characteristics distinguishing *A. aerophoba* from *A. cavernicola*.

		A.aerophoba	*A.cavernicola*
ECOLOGICAL CHARACTER.	Illumination	Fully exposed	slightly exposed
	Depth range	0.5 to 30 m	5 - 130 m
	Presence of cyanobacteria	always	very rarely
MORPHOLOGICAL CHARACTERISTICS	Surface	Conules small and irregularly distributed	conules more regularly distributed
	Digitations	irregular, often fused together, thinner towards the top, forming a depression in the center of the plane existing at the top of each digitation	more regular and thinner, exhibiting approximately the same diameter from their base to the top, forming a plane at the top but not a depression.
	Lateral projections	often present	never present
	Color	Yellow, turning dark violet or black quickly when exposed to air or placed in alcohol.	light yellow turning violet in alcohol. Remains yellow after a few hours in air.

3/ Specimens from greater depths (i.e. one collected from 150 m) exhibited an irregular form and irregular digitations which are characteristic of *A. aerophoba*. The usual form of the specimens of this genus in the Aegean Sea (independent of depth) is a form with several, regular digitations and with lateral projections rarely occuring. The irregular form with lateral projections was not observed often. These can

be seen in the photographs given by Topsent (1927-29), and Pulitzer-Finali & Pronzato (1981).

4/ No difference in the skeleton of the various specimens has been observed.

5/ The depression on the top of the digitations existed in all the specimens from shallow depths. However, in specimens collected deeper than 30 m, some displayed this characteristic while others did not. Pulitzer-Finali & Pronzato (1977), (who have found *A. cavernicola* in depths between 40 and 50 m) state that : "we have not been able to form an opinion on a discriminating feature indicated by Vacelet : the apex of the digitations being a plane with or without a depression".

CONCLUSION

From the observations of this study it is difficult to accept that, at least in the Aegean Sea, there are two different species of *Aplysina*. It is perhaps easier to accept that the morphological differences observed by Vacelet (1959), discriminate between two separate ecological forms and not two separate species. This aspect is partially supported by the fact that such morphological differences appear in other sponge species. *Petrosia ficiformis* Poiret, for example, in the Aegean Sea (personal observations) and in the Western Mediterranean (according to Wilkinson & Vacelet, 1979) appears with three different morphological forms depending on the habitat conditions (i.e. light and substrate).

Further investigations need to be done with the application of different taxonomical criteria, besides morphology, in order to reach a conclusion on this subject.

LITERATURE CITED

Pulitzer-Finali G. & Pronzato R., 1977 - Report on a collection of sponges from the bay of Naples. II. Keratosa. *Pubbl. Stn. Zool. Napoli* 40(1) : 83-104.

Pulitzer-Finali G. & Pronzato R., 1981 - The Keratosa in a collection of Mediterranean sponges mainly from the Italian coasts. *Ann. Mus. Civ. st. nat. "G. Dovia"*, 83 : 127-158.

Topsent E., 1927-29 - Faune et flore de la Méditerranée. Porifera. *C.I.E.S.M.*, 11 pls.

Vacelet J., 1959 - Répartition générale des éponges et systématique des éponges cornées de la région de Marseille et de quelques stations méditerranéennes. *Recl Trav. Stn mar. Endoume*, 16(26) : 39-101.

Wilkinson C.R. & Vacelet J., 1979 - Transplantation of marine sponges to different conditions of light and current. *J. exp. mar. Biol. Ecol.*, 37 : 91-104.