

## RE-ESTABLISHMENT OF THE GENUS *POROPSIS* KÜTZ.

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### Abstract

*Poropsis* Kütz., is retained as a genus of its own because of smooth axes, absence of articulations and lobules.

### Introduction

A small filiform, green marine alga from the Mediterranean Sea has always been referred either to *Espera* Decaisne (1842) or to *Penicillus* Lamarck (1813) or to *Poropsis* Kützing (1856). The genus *Espera* was already invalidated by Thuret ex Bornet (1892) as it was occupied in Phanerogams-Tiliaceae (Willdenow, 1801) and transferred to *Penicillus* Lamarck as *P. mediterraneus* (Decne.) Thur. ex Bornet considering this as the primordial stage of *Penicillus*. Silva (1953), Friedmann & Roth (1977) and Boudouresque & Perret (1977) also considered it exceptionally a reduced form of *P. mediterraneus*. Woronine (1862) concluded that *Penicillus*, *Espera* and *Poropsis* are three names of the same alga. Huvé & Huvé (1963) considered *E. mediterranea* from the French coast a simple form of *P. capitatus* Lamark of the tropical Atlantic ocean i.e., *P. capitatus* f. *mediterraneus* (Decne.) Huvé et Huvé.

Kützing (1856) established the genus *Poropsis* Kütz., based on *Bryopsis saburralis* De Notaris (1846) [not *Br. subunalis* De Not. as mentioned by Kützing, it may be an orthographic error] without referring to *Espera mediterranea* Decne., which he had already described in *Species Algarum* (1849). Kützing's specimens in Rijksherbarium were examined by Dr. W.F. Prud'homme van Reine on 10.6.1991 and his observation is reproduced below (Personal communication).

It is not clear if Kützing kept *Espera mediterranea* and *Poropsis subunalis* apart - anyway he did not synonymize them neither did he figure *E. mediterranea* in his Tabulae. In Rijksherbarium there is a specimen in the folders of "*Espera mediterranea* labelled *Poropsis subunalis* Kütz. Tab. Phyc. VI. Tab. 85" (all scrips. Kützing) and "*Bryopsis subunalis* De Notaris, Cannes" (Scrips. Lenormand). There is another specimen labelled "*Espera mediterranea* Kützing" (Scrips. Suringar?) and "*Bryopsis subunalis* De Not. Genua" (Scrips. ?). The specimens of the first sample are exactly like Kützing figured them, thus they seem to be articulated and not just constricted. The rather strong calcification makes it difficult to be sure. There are no slides of this material".

It is quite possible that Kützing (1856) and Decaisne (1842) were dealing with two different taxa belonging to *Espera mediterranea* Decne., and *Poropsis saburralis* (De Not.) Kütz. (*Bryopsis saburralis* De Not. 1846). Following is the diagnosis of the above mentioned three genera:

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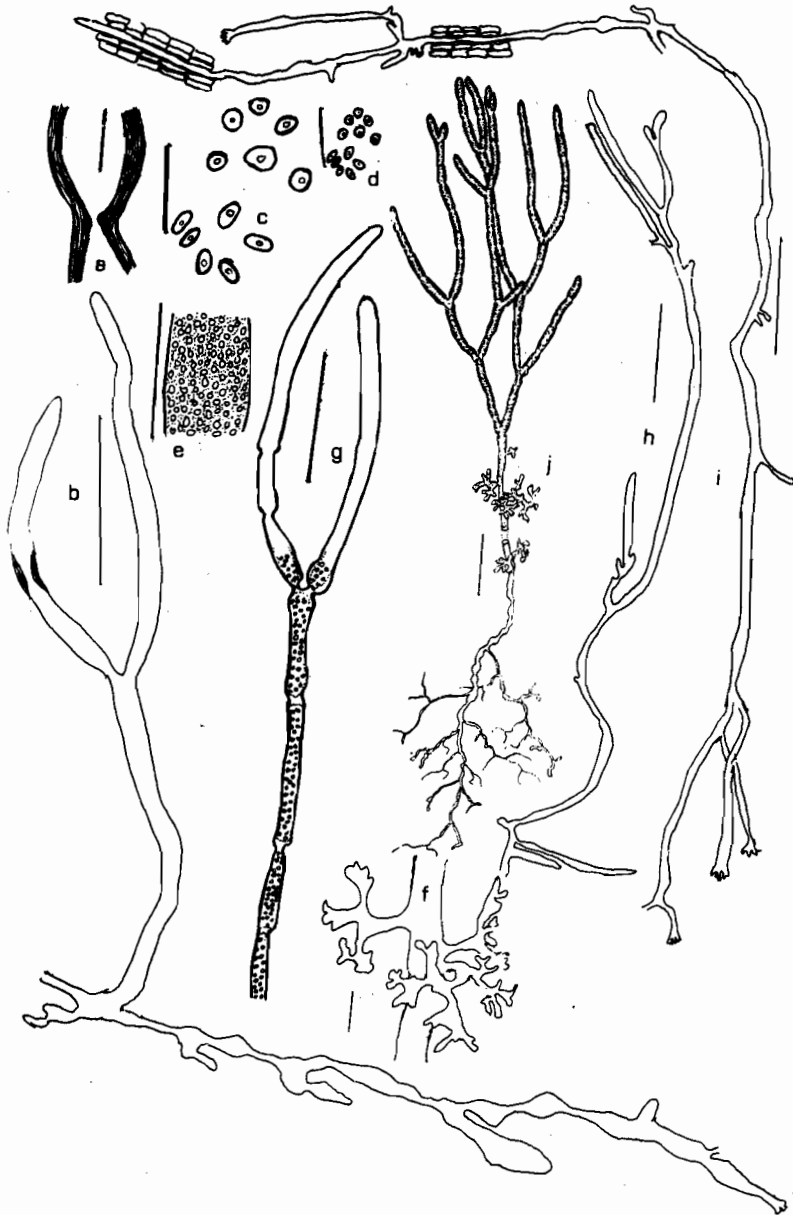


Fig.1. *Poropsis saburalis* (De Notaris) Kützing.

a) Showing constriction. Scale  $100\mu\text{m}$ ., b) Habit-erect subdichotomous axis and stolon. Scale 1 mm., c) Amyloplasts. Scale  $50\mu\text{m}$ ., d) Chloroplasts. Scale  $100\mu\text{m}$ ., e) A portion of erect axis showing pores. Scale  $200\mu\text{m}$ ., f) A portion of *Espera* (= *Penicillus capitatus* f. *mediterraneus* Huvé et Huvé) showing lobules (drawn after P. Huvé et H. Huvé 1963). Scale  $100\mu\text{m}$ ., g) A portion of erect subdichotomous axis bearing pores and showing constriction. Sale 1.2 mm., h & i) Stolon showing hapteroid attaching rhizoids and erect axis. Scale 2 mm., j) A young stage of *Penicillus capitatus* (*Espera mediterranea*) [After Huvé et Huvé 1963]. Scale 1 mm.

(1) *Espera* Decaisne 1842: 99 or 88 or 111. Stipes brevis, crassus, stuposus in globum pugillarum desineus, filamentis filiformibus tubulosis dichotomis articulatis materia viridii repletis compositum - Alga marina viridis inferne stuposa.

*Espera mediterranea* Hab. in mari Mediterranea (Villefranche), Risso. (In herb. Mus. Par. Comm. á cl. Agardh. fil.).

(2) *Poropsis* Kützing 1856: 29, t. 85. *Poropsis subunalis*: Coeloma filiforme duplex, exterius calcaria incrustum articulatum poris numerosis subdistantibus pertusum, interius continuum (?) chlorogonicum tenuissime membranaceum ch. spec: P. coelomatibus intricatis subsetaceis, subdichotome ramosis, ramis superioribus crebrioribus, viridibus, dealbatis. Cannes: Lenormand (Als *Bryopsis subunalis* De Notaris).

(3) *Bryopsis saburralis* De Notaris 1846: 73. Filis laxae caespitosis fasciculatis repetito dichotome. Corymbosis axillis acutis, ramis ad dichotomarium originem filisque hinc inde constrictis confervoideis, ramellis terminalibus plerumque abbreviatis, obtusis.

Genova e Nizza; Predilige: fondi arenosi. A primo aseptto si potreble scambiare con una specie di *Cladophora*.

Libyan specimen is not stipitate and not articulated, but it appears to be articulated because of strong constrictions and heavy incrustations. It strongly resembles *Poropsis saburralis* in upper parts as the lower parts are lacking in Kützing's specimen and figure. Kützing's specimens and Libyan specimens have smooth filaments without convoluted lobules and stoloniferous habit but De Notaris' *Br. saburralis* has caespitose habit and smooth filaments.

*Poropsis* differs from *Espera* (= *Penicillus*) in absence of convoluted lobules, articulations and stipes but resembles in di or subdichotomal branching pattern. Hence *Poropsis* Kützing is retained as a distinct genus.

### Material and Methods

Specimens were fixed in 4% formalin-seawater solution and some were mounted on herbarium sheets. Fresh specimens were also examined. Iodine-starch test was also made to test the heteroplasticity. Specimens are kept in Botany Department, Garyounis University, Benghazi, Libya.

### TAXONOMIC OBSERVATION

*Poropsis Kützingemended Nizamuddin, El-Menifi & Godeh*: Thallus filamentous, smooth, filiform, stoloniferous or caespitose, with erect dichotomous or subdichotomous axes, incrustated with numerous, dense pores; strongly constricted below or above or in between the dichotomies, absence of lobules and articulations; heteroplastic, chloroplast with a single pyrenoid. Reproduction unknown.

The genus is represented by a single species, *P. saburralis* (De Not.) Kütz., and is endemic to the Mediterranean Sea.

*Poropsis saburralis* (De Not.) Kützing 1856: 29, t. 85, f.1

*Basionym*: *Bryopsis saburralis* De Notaris 1846: 67, 73.

Fig. 1 & 2

Thallus filiform, smooth, filamentous, stoloniferous with erect axes up to 2 cm high but generally up to 8 mm high, (70-) 85-145 (-170)  $\mu$ m diam., di-subdichotomous-

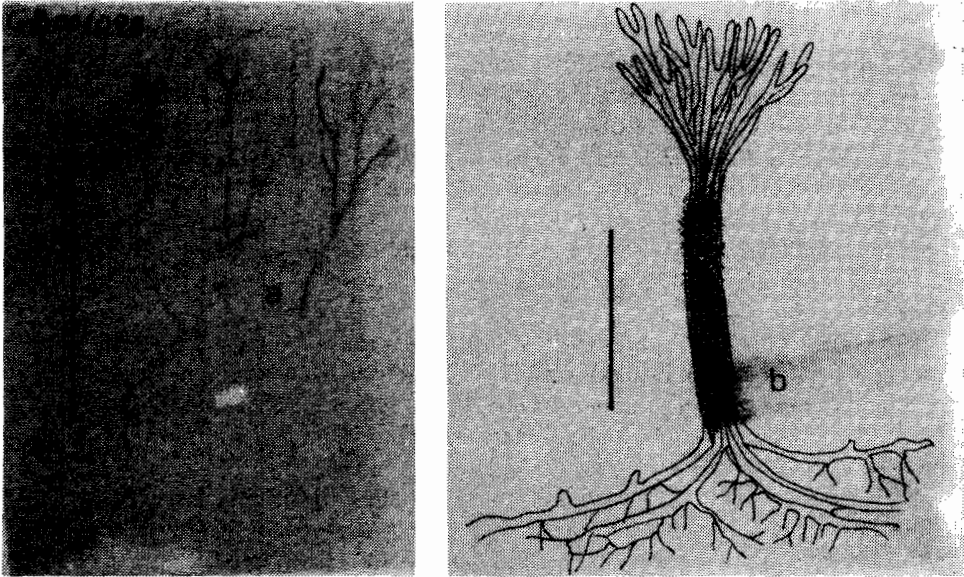


Fig.2. *Poropsis saburralis* (De Notaris) Kützing.

a) Habit of the plant. Scale 1 cm., b) Habit of the plant. Showing basal part. Scale 7 mm.

ly branched, no lobules, no articulations, strongly constricted above or below the dichotomies or even on the internodes (segments between the dichotomies), strongly constricted at irregular distances, strongly calcified ( $145-190\ \mu\text{m}$  thick) bearing dense round ( $12-15\ \mu\text{m}$  diam.) or ovoid ( $15-22 \times 15\ \mu\text{m}$ ) pores; terminal end of the axis initially uncalcified. Prostrate axes swollen at irregular intervals from where erect axes, branches and rhizoids develop. Rhizoids mostly colourless, simple or irregularly or dichotomously branched with hapteroid attaching ends and mostly contain leucoplasts. Heteroplastids dense numerous discoid, ( $4-10\ \mu\text{m}$  diam.) or ovoid ( $3.5 \times 7.5\ \mu\text{m}$ ).

**Locality:** Tobruk (Leg. Fathalla 26.1.1991), collected as floating material from a depth of 50 m as an epiphyte on *Posidonia oceanica* Del. El-Thamma (Leg. Fathalla, 21.10.1989 on sublittoral rocks). Genova and Nizza (Leg. De Notaris 1846). Cannes (Lenormand in Kützing 1856).

In Libyan specimens smooth filaments form a bundle because of adherence of adjacent filaments due to strong calcification but upper parts remain free. There is complete absence of lobules (Fig.1b,g) little or no calcification at the constriction but lobules occur in *Espera mediterranea* [= *Penicillus capitatus* f. *mediterraneus* Huvé et Huvé] Figs. 1f, j].

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