

## A CAESPITOSE-TOPHULOSE *CYSTOSEIRA* SPECIES FROM TRIPOLI, LIBYA

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### Abstract

A new species, *Cystoseira masoudii* Nizam., characterized by caespitose habit possessing smooth/spinose tophulose is described.

### Introduction

Qarqaesc (Gargaresh) lies on the west of Tripoli City and its coast is rocky belonging to Pleistocene deposits (Qarqaesc Formation) predominantly calcrites (Caliches) and exposed to strong wave action. This coast is mostly inhabited by green algae especially *Ulva* spp., *Enteromorpha* spp., *Cladophora* spp., and also by brown algae like *Padina pavonia* (Linn.) Lamour., and *Cystoseira* spp. During the collection of marine algae along the coast of Libya, an unusual type of *Cystoseira* species being caespitose in habit bearing tophules was recognised. This species is designated as *Cystoseira masoudii* sp. nov. after Dr. Masoud Godeh, Department of Botany, Garyounis University, Benghazi, for his contributions in the field of marine algae of Libya.

### Materials and Methods

Materials collected from such rocky pools which are always submerged in water were either fixed in 5% formalin-seawater solution or mounted on herbarium sheets kept in B and ULT. Freehand sections were made from the preserved material as well as from the dry material soaked in warm seawater for about an hour.

### Descriptio:

*Cystoseira masoudii* Nizamuddin sp. nov. Figs.1-4.

Caule caespitoso, tophuloso, evesiculoso, rosulam formanti; haptero discoideo, axis principalis glaber, cylindrico-compressur, radiatim ramosus, apice glabro (aut spinuloso). axes primarii juniores cylindrici adultiore cylindricocompressi, alternatim vel radiatim ramosi. Tophuli oblongi (7x3 mm), radiatim ordinati, stipitati; spinosi (ubijuniores) glabri vel tuberculati (ubi adultiore) axes secundarii alterni, pinnati, sursum complanati et incrassati ad centrum, spinulas remotas gerentes, cryptosi. axes tertiarii alterni, sub-dichotomi, plani, sparsim cryptosi, glabri, laevigati. receptacula terminalia, bisexualia, spinosa aut verrucosa.

Typus: Qarqaesc, Tripoli 14.6.1981, Nizamuddin s.n. (Holo-B 36385; iso-B36384).

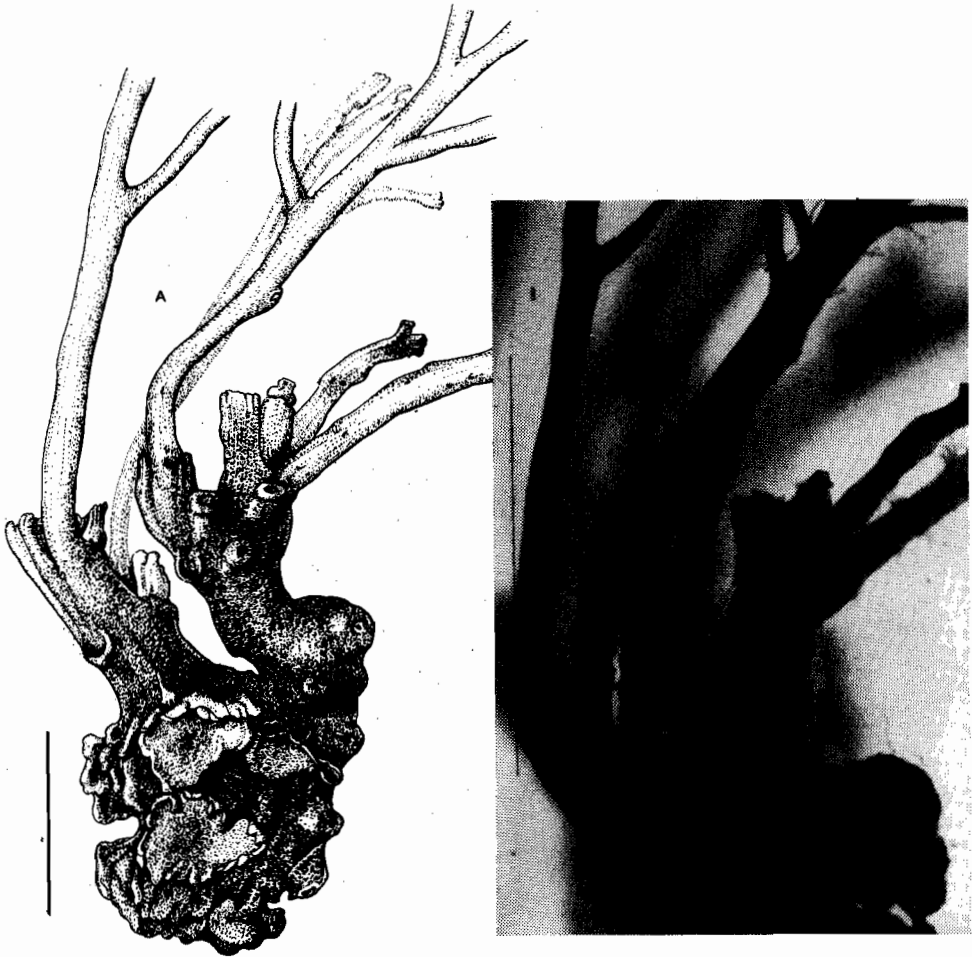


Fig.1. *Cystoseira masoudii* Nizam. sp. nov. A) Basal part of a plant showing tophules and apical region; B) Basal part of a plant showing tophules and apical region (Scale bar: A= 4 cm, B= 1 cm).

#### Description:

#### *Cystoseira masoudii* Nizamuddin sp. nov.

Figs.1-4

Plants caespitose, tophulose, non-vesiculose, rosette forming, erect up to 17 cm high (Figs.3A,B). Holdfast discoid up to 15 mm across giving rise up to 12 erect main axes. Main axes small, cylindrico-compressed up to 2(-4) cm long, 3 mm across, to 2 mm thick (Fig.1A) tuberculate (due to stumps of the primary axes), smooth radially branched; apex smooth (-spinose) (Fig.4B). Primary axes, cylindrical, strongly spinose, radially arranged (Figs.2A,B), their basal parts gradually develop into spinose tophule (Fig.4D); on maturity primary axes cylindrico-compressed up to 13 cm long,

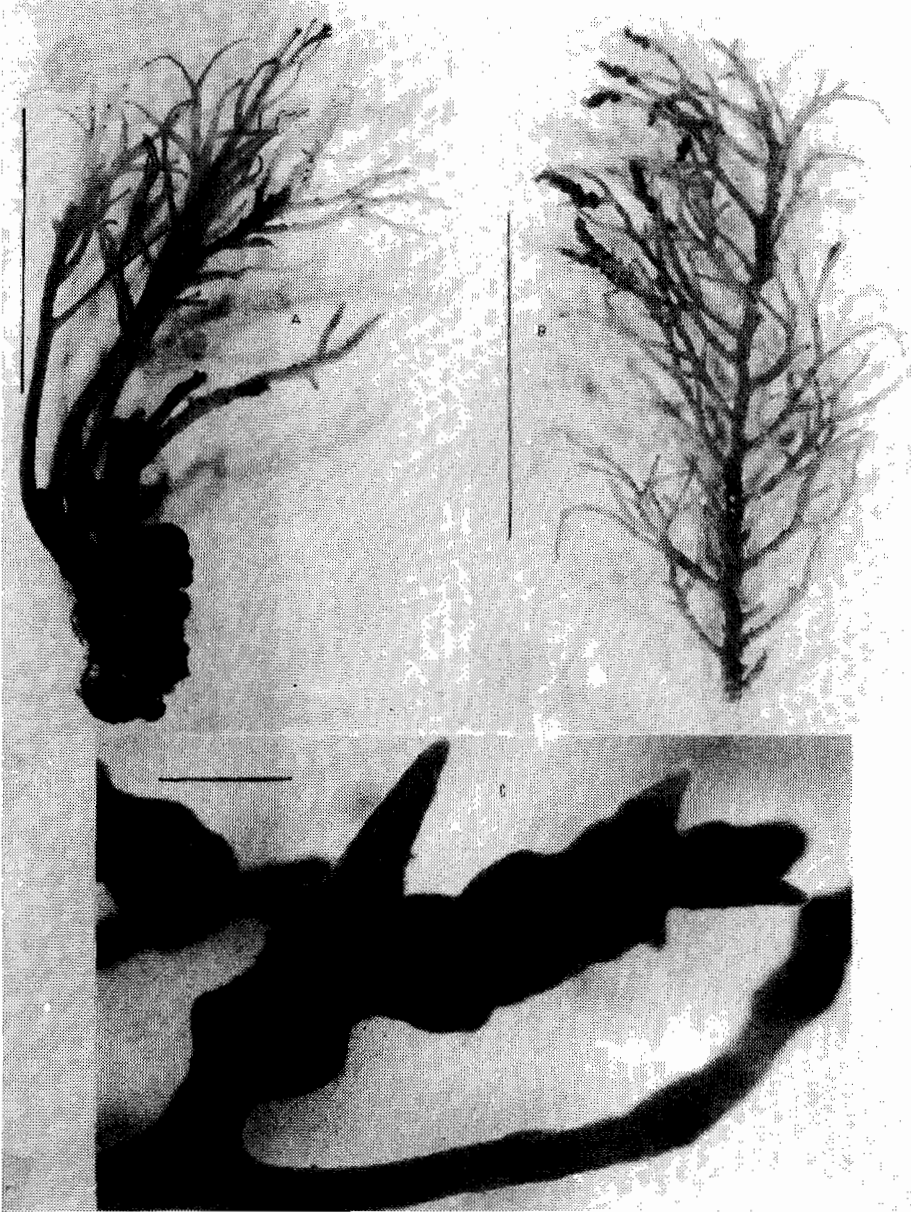


Fig.2. *Cystoseira masoudii* Nizam. *sp. nov.* A) Main axis bearing tophules, primary axes bearing cryptostomata; B) Primary and secondary axes bearing terminal receptacles; C) A spinose receptacle (Scale bar: A&B = 2 cm, C=1 mm).

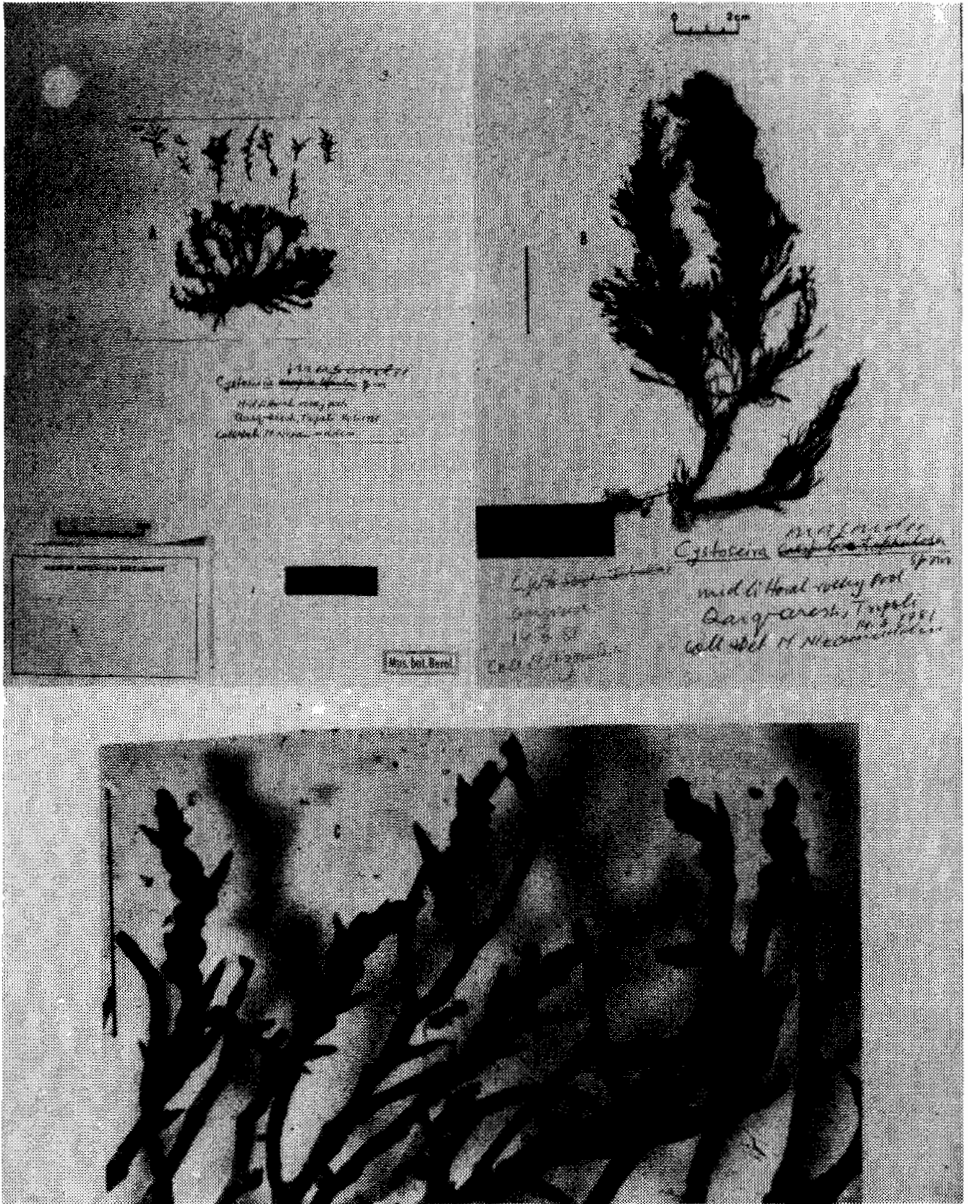


Fig.3. *Cystoseira masoudii* Nizam. sp. nov.: A) Habit of the holotype no. B36385. Midlittoral rocky pools. Qarqareh, Tripoli (Leg. M. Nizamuddin, 14-6-1981); B) Habit of the isotype in Botany Department, Univesity Garyounis, Benghazi. Midlittoral rocky pools. Qarqareh, Tripoli (Leg. M. Nizamuddin 14-6-1981); C) Secondary and tertiary axes bearing receptacles. (Scale bar: A=5 cm, B= 7 cm, C = 4.8 mm).

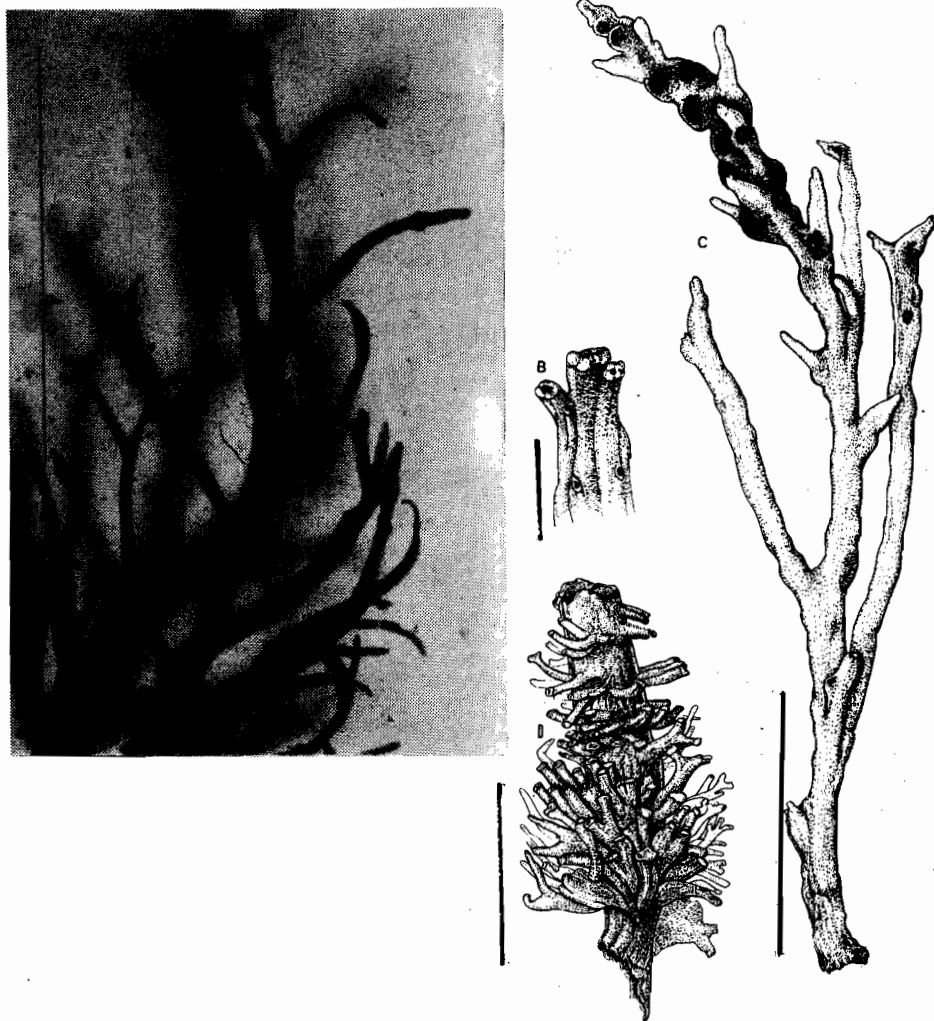


Fig.4. *Cystoseira masoudii* Nizam. *sp. nov.*: A) Axes showing cryptostomata; B) Apex of the main axis; C) Secondary and tertiary axes bearing receptacle and cryptostomata; D) A spinose tophule. (Scale bar: A & C = 1 cm, B = 1 mm, D = 3.5 mm).

alternately or radially branched, up to 2 mm across. Basal primary axes flat to 1.5 mm broad, up to 3 cm long, centrally thickened, pinnately branched. Tophules stalked, oblong 7x3 mm, radially arranged, spinose (when young), mature ones smooth or tuberculate (Figs.1,2A,4D). Secondary axes basally cylindrico-compressed up to 0.5 mm across, up to 4 cm long, pinnately alternately branched becoming flat upwards to 1 mm broad with central thickening, distantly spinose and cryptose, apically furcate. Tertiary axes alternate or subdichotomous, flat up to 400  $\mu$ m broad, to 12 mm long, sparsely cryptose, smooth; apices acute. Receptacles terminal, spinose, verrucose, bisexual (Figs.2C,3C,4C).

**Specimens examined:**

Libya - on the coast of Qarqaresc, near Tripoli growing in midlittoral rocky pools in association of *Cystoseira compressa* (Esper) Nizam. et Gerl, *Padina pavonia* (Linn.) Lamour., and *Dictyopteris tripolitana* Nizam. (Leg.: 14.6.1981, M. Nizamuddin s.n.).

**Discussion**

*Cystoseira masoudii* Nizam. sp. nov. is characterized by caespitose habit as well as tophule bearing, whereas other known species of *Cystoseira* are either caespitose in habit without tophules or single erect axis bearing tophules or single erect axis without tophules.

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