

**Marine Fungi associated with the Seagrass *Cymodocea nodosa*
(UCRIA) Ascher.
From western coast of Libya**

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ABSTRACT:

The present study reports on Marine fungi associated with the seagrass *Cymodocea nodosa* (UCRIA) Asher. A widely distributed seagrass in the Mediterranean Sea .The collected specimens were examined under light microscope after incubation period of 4--8 weeks. Of the samples examined ten fungal genera and species have been identified. The identified organisms belong to the classes Hyphomycetes (8 species) and Coelomycetes (2 species) of these, 4 species were reported for the first time in Libya. Brief descriptions of the new records are presented.

Keywords: Marine fungi, *Cymodocea nodosa*, Hyphomycetes, Coelomycetes, libya.

INTRODUCTION:

Seagrasses are fully submerged marine flowering plants. Of about 72 seagrass species worldwide, only three species are recorded in Libya: *Posidonia oceanica* (L.)DELIL., *Cymodocea nodosa*(UCRIA) Asch and *Halophila stipulaceae* (Forssk).The seagrasses have several characteristics in common. The above ground visible part consists of shoots (leaf bundles) with 3-10 Linear leaves and rhizomes (vertical and/or horizontal). The seagrass *Cymodocea nodosa* has shoots consisting of 2-5 leaves attached to vertical rhizome with short rhizome segments which again attached to a horizontal rhizome with 1- 6 cm long segments. Few data are available in particular regarding marine fungi associated with sea grasses (8) (3) (10). Presented the first fungal community associated with the seagrass *Posidonia oceanica* (L.) DELIL. Recently a survey study of marine fungi from Western Coast of Libya was published (5) , amongst them three marine species associated with the seagrass *Posidonia oceanica*(L.)DELIL. *Corollospora maritima*,Werderm. ,*Halottia Posidonia* (Dur.et MONT.) Kohlm and *Pontoporia biturbinata* (Dur. Et Mont.) Kohlm. *Dendryphiella arenaria*,Nicot. associated with the seagrass *Cmodocea nodosa* was included. However there is little information on marine fungi in Libya. This work has been carried out to further document the marine fungi associated to the seagrasses from Libya.

MATERIALS and METHODS:

Our study was conducted in January and February 2020 .Plants of the seagrass *Cymodocea nodosa* that had washed ashore by the sea and found loose on the shore (8) , were collected from Tajoura beach (35 km east of Tripoli), transferred to the laboratory ,washed in running tap water ,and placed on moist papers in glass chambers. Samples were examined periodically for any fungal growth. Culture of fungi were obtained where possible from single spores, overall emphasis was placed on direct examination of fungi for morphological characterizaton.The Hyphomycetes besides Coelomycetes are generally separated on conidial structure,

colour, septation and shape, (4). For Coelomycetes squash mount of pycnidia were prepared on slide mounted with lactophenol cotton blue for spores measurement. Single spores isolation could be obtained by moving single spore with a capillary pipette from spores suspension (2). Identification Keys were used (9)(7)and (11).

RESULTS:

In the present study a total of ten fungal taxa were identified. The identified taxa belong to the classes Hyphomycetes (8 species) and Coelomycetes (2 species). The Highest number of fungal species were found in the rhizomes of the seagrass *Cymodocea nodosa* and only 3 fungal species, *Alternria* sp. *Aspergillous* sp., and *Penecillium* sp. are found common to both districts, rhizomes and leaves of the seagrass *Cymodocea nodosa* (Table 1)

Table 1: Genera and species of fungi isolated from leaves and rhizomes of *Cymodocea nodosa*. After incubation period of (4--8) weeks

No.	Fungal species	Incubation Period		No.	Fungal species	Incubation Period	
		L	Rh			L	Rh
Hyphomycetes		L	Rh			L	Rh
1	<i>Alternaria</i>	+	+	6	<i>Humicola</i>	-	+
2	<i>Aspergillus</i>	+	+	7	<i>Penecillium</i>	+	+
3	<i>Cirrenalia macrocephala</i> , Kohlm	-	+	8	<i>Stachybotrys</i>	-	+
4	<i>Dendryphiella arenaria</i>	-	+	Coelomycetes			
5	<i>Fusarium</i>	-	+	9	<i>Camarosporium roumeguerii</i>	-	+
				10	<i>Phoma</i>	-	+

L = leaves

Rh = Rhizomes

Discussion:

In the present work the Hyphomycetes *Alternaria* sp., *Aspergillus* sp., *Fusarium* sp., *Penicillium* sp and *Stachybotrys* sp. Resemble those isolated from terrestrial habitats. They are known as saprophytes adapted to marine environments(6). *Dendryphiella arenaria* Nicot, was previously reported on landed rhizomes of the seagrass *Cymodocea nodosa* collected at Zuwara the only one of six locations studied along the western coast of Libya (5). *Cerrinalia macrocephla* (Kohlm) Meyer and Moor. Synonym: *Helicoma macrocephla*, Kohlm. Conidia 2 to several cells, recurved, rarely straight, increasing in diameter and pigmentation from base to apex. Apical cell 8-16 microns in diameter.

The organism was reported on drift wood in coastal waters of Kuwait (12) and from submerged plant debris in aquatic habitats in Iraq (1). Our collection represents the first report of the species in Libya.

Among the Marine Hyphomycetes isolated in the present investigation *Humicola* sp. The organism producing solitary thick walled perform to clavate conidia 3.5×10 microns in diameter. *Camarosporium roumeguerii*, Pycnidia immersed, black and papillate. Conidia $17-20 \times 7-10$ microns, 3 transepta and 1-2 lonisepta and light brown. Only one record for *Camarosprium roumeguerii* in the Arabian Gulf was reported (1). The pycnidial *Phoma* sp are frequently encountered in the marine and estuarine environments on a wide variety of substrata (8). Conidia, single celled, ellipisoidal, hyalin and usually under 7.5 microns in diameter (1.5 -7). The wide variability in pycnidial morphology and spore shape makes identification of *Phoma* genus to species level difficult.

CONCLUSION :

In conclusion 8 fungal species (Hyphomycetes) and 2 fungal species (Coelomycetes) have been identified. *Cirrenalia macrocephala*, *Humicola* sp, *Camarosporium roumeguerii*, and *phoma* sp were not reported previously from Libya.

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