

REDISCOVERY OF A FORGOTTEN SEAWEED FOREST IN THE MEDITERRANEAN SEA, THE *CYTOSEIRA MONTAGNEI* (FUCALES) FOREST

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Abstract

Cystoseira montagnei is a brown alga (Fucales) described in the mid-19th century. Subsequently, it has been reduced to the status of doubtful taxon and crossed off from diversity lists. We have discovered near Algiers (Algeria) a dense and lush forest of *C. montagnei*. The taxon is well-characterized, deserves species status and its forests are in need a effective protection.

Keywords: *Phytobenthos, Algerian Basin, Algae, Systematics*

Seaweed forests of the wrack genera *Cystoseira* and *Sargassum* (Fucales, Phaeophyceae, Chromobionta, kingdom Stramenopiles) were once widespread in the Mediterranean Sea. However, since the 1950s, most of these species have become gradually rarer, and some of them are now locally extinct (i.e. extinct at the scale of a region) or functionally extinct (i.e. they no longer play their former functional role within the coastal ecosystems) [1, 2]. The proliferation of herbivorous species, such as the sea urchin *Paracentrotus lividus* and the teleost *Sarpa salpa* in the western Mediterranean, and the rabbit fish species *Siganus luridus* and *S. rivulatus*, introduced from the Red Sea, in the eastern Mediterranean, are the main causes of Fucales forest regression [2, 3]. Contrasting cases are represented by the shallow water species *Cystoseira amentacea*, still common in most regions [4] and the Port-Cros National Park in eastern Provence, where most species are still abundant [5].

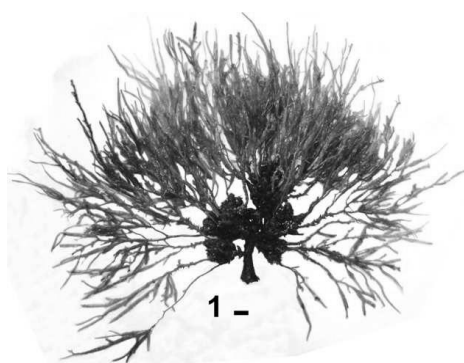


Fig. 1. Habit of *Cystoseira montagnei*. Specimen H8300 collected near Algiers (Algeria) on September 13, 2014. Scale bar = 1 cm.

Another contrasting case is represented by *Cystoseira montagnei*. This poorly known species, described from Algeria (southern Mediterranean) [6], was subsequently considered as a doubtful taxon [7]. We discovered, near Algiers (Algeria), a relatively dense (up to 10 individuals per m²) and lush forest of *C. montagnei* (Fig. 1). It thrives between 10 and 21 m depth, on gently sloping rocky reefs. The study of the specimens has established that they belong to a well-characterized species, *C. montagnei*, distinct from all other species of the genus: (i) non-caespitose species (Fig. 1); (ii) young tophules spinose (Fig. 2a left); (iii) old tophules spineless (Fig. 2a right); (iv) lower primary branches complanate with an inconspicuous median nervure and branching pattern alternate to irregular in one plane (Fig. 2b); (v) upper primary branches, cylindrical, branched with spaced short simple spinose branchlets (Fig. 2c); (vi) intercalary basal receptacles differentiated close to the tophules and diffuse distal receptacles with conceptacles differentiated in the base of spinose branchlets (Figs. 2d, 2e). The specimens, sampled by SCUBA diving, are preserved in the Verlaque Herbarium (HCOM) at Aix-Marseille University. *Cystoseira montagnei* is clearly a well-characterized taxon and its removal from the list of inquirenda species [7] is justified. The geographical range of *C. montagnei* needs to be clarified: is it endemic to the

North African coasts? Or more widely distributed in the Mediterranean? The forests this species builds have a natural heritage value and deserve to be protected, before they meet the same fate as many other wrack Mediterranean forests. What are the putative threats and, if identified, how can they be countered?

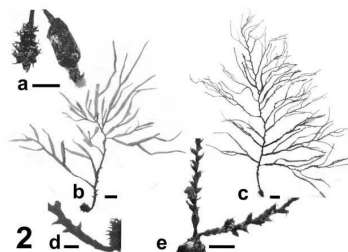


Fig. 2. Details of specimens H8288, H8290, H8300 of *C. montagnei* collected near Algiers (Algeria) on August 6, September 16 and September 13, 2014, respectively. a. Spinose (left) and spineless (right) tophules. b. Lower primary branch. c. Upper primary branch. d and e. Intercalary receptacles differentiated close to the tophule. Scale bars: a, d and e = 5 mm; b and c = 1 cm.

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