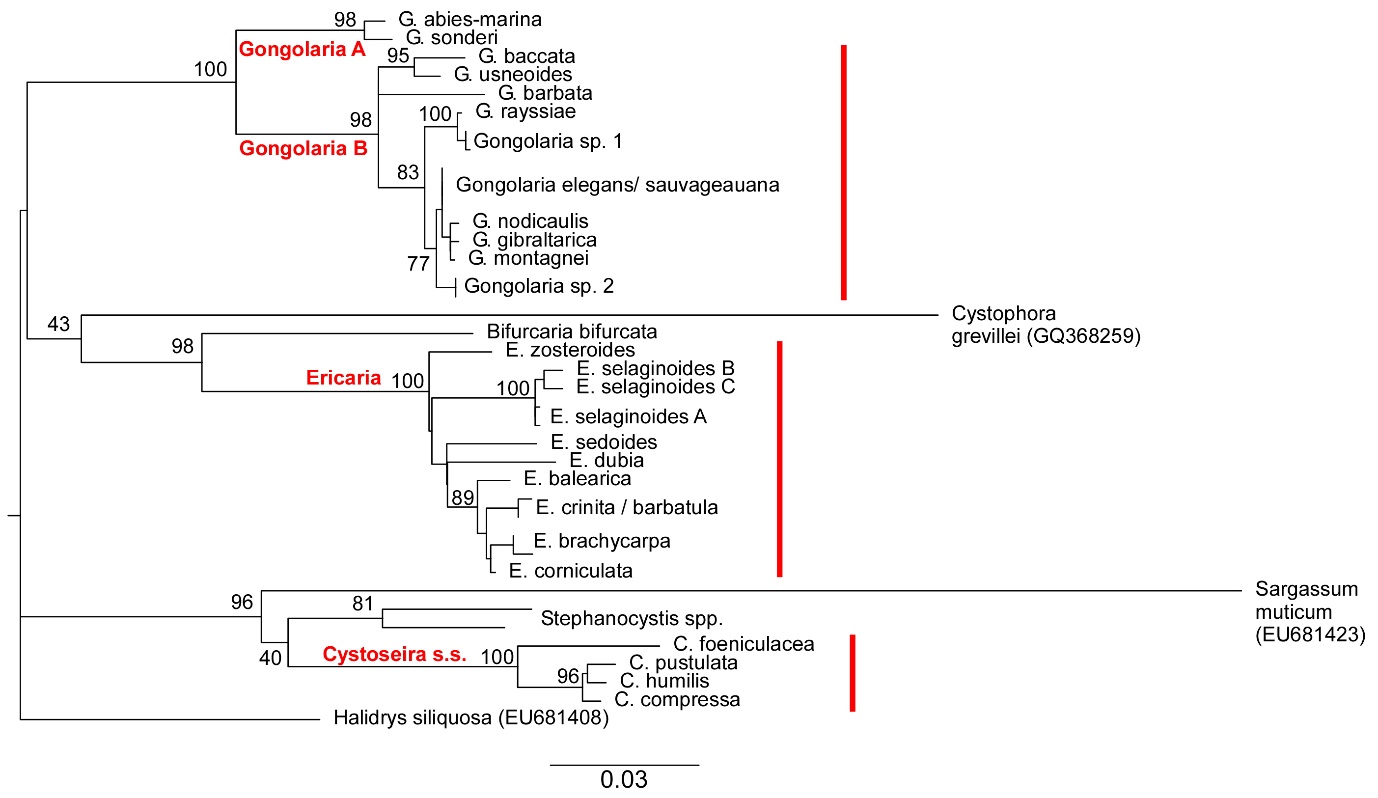
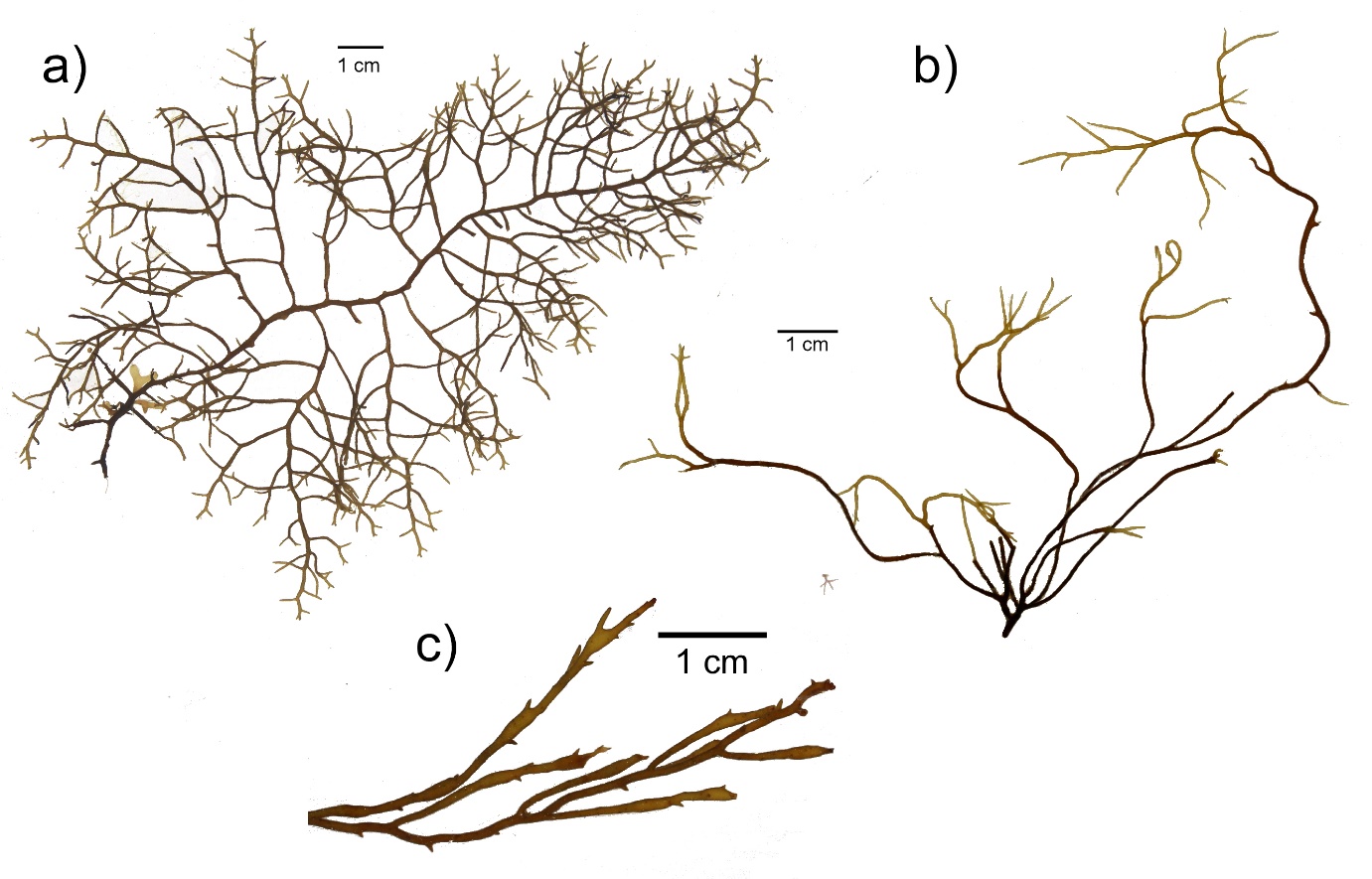
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**Supplementary Figure S1.** Maximum-Likelihood *cox*1 phylogenetic tree of *Cystoseira* s.l. and related genera, showing bootstrap support values near the nodes.

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**Supplementary figure S2. Morphology of free-living *Cystoseira* s.l. from southern Iberia and northern Morocco. a)** General morphology of *Cystoseira foeniculacea* f. *formosensis* Neiva & Serrão, f. nov.; **b)** Branching pattern of *Gongolaria gibraltarica* f. *lacunarum* Neiva & Serrão,f. nov., from Ria Formosa (southern Portugal); **c)** detail of terminal branches of *G. gibraltarica* f. *lacunarum* from Nador lagoon (northern Morocco) showing chains of aerocysts.

Uma imagem com árvore, exterior, planta

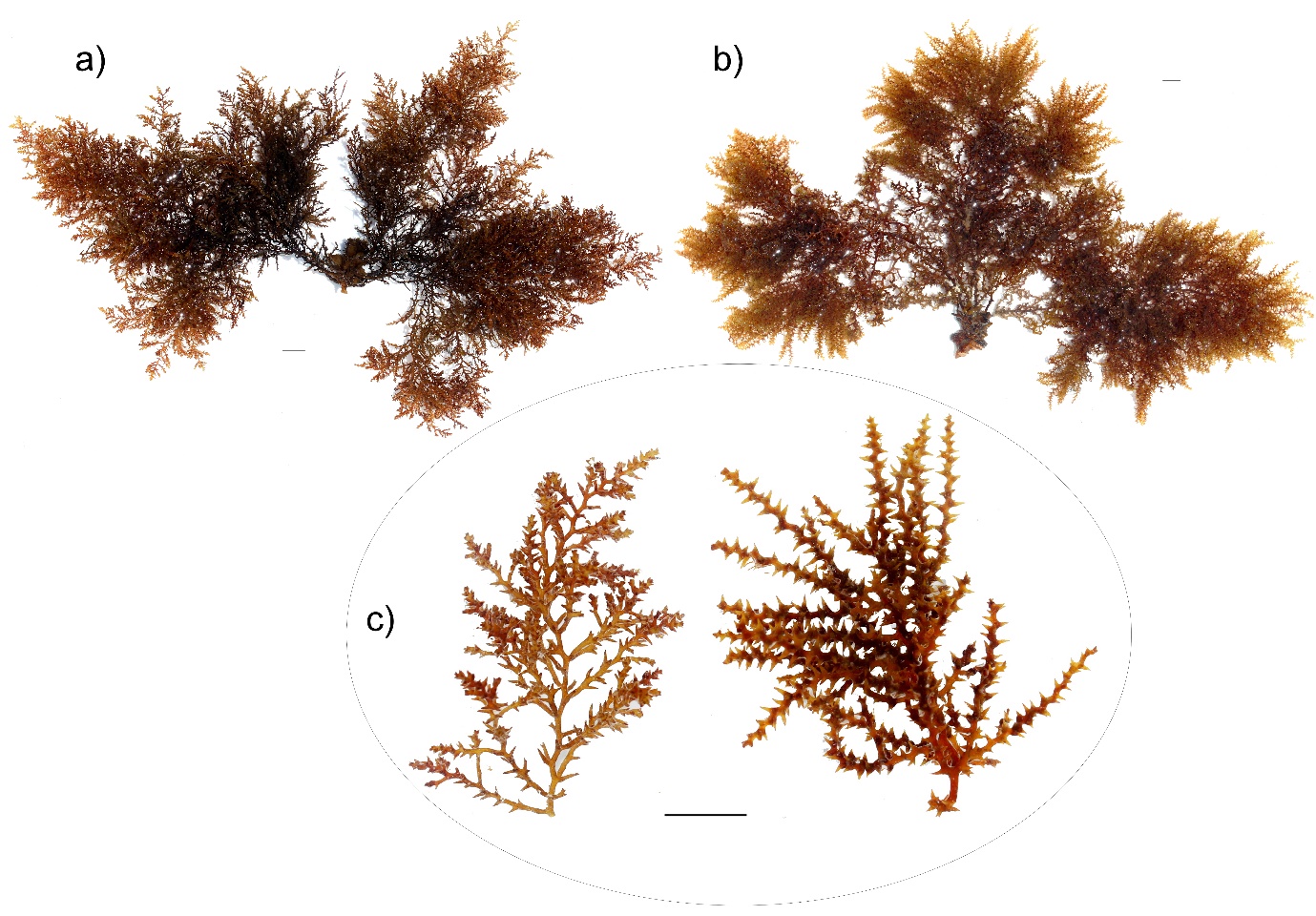
Descrição gerada automaticamente

**Supplementary figure S3. General morphology and polymorphism of *Ericaria brachycarpa* s.s. a)** Habit of a summer, shallow-water alga from northern Sicily. **b)** Habit of a summer, -4 m deep alga from southern Crete, including details of **c)** reproductive structures and of **d)** the spiny cauloid apex. Scale = 1cm.

Uma imagem com árvore, céu, exterior, planta

Descrição gerada automaticamente

**Supplementary figure S4. General morphology of *Ericaria crinita* s.l. from Crete. a)** Habit and spinose apex of cauloid (inset) of *E. crinita* s. s.; and **b)** Habit and smooth apex of cauloid (inset) of *E. barbatula*. Scale = 1cm.



**Supplementary figure S5**. **General morphology and polymorphism of *Gongolaria elegans* from Catalonia. a)** Habit of the “typical” shallow-water form (Cadaqués). **b)** Habit of the deep-water form (Medes Islands). **c)** Detail of last-order branches of shallow- (left) and deep-water (right) forms, showing marked differences in the density and size of spinose appendages. Scale = 1cm.

Uma imagem com planta, árvore

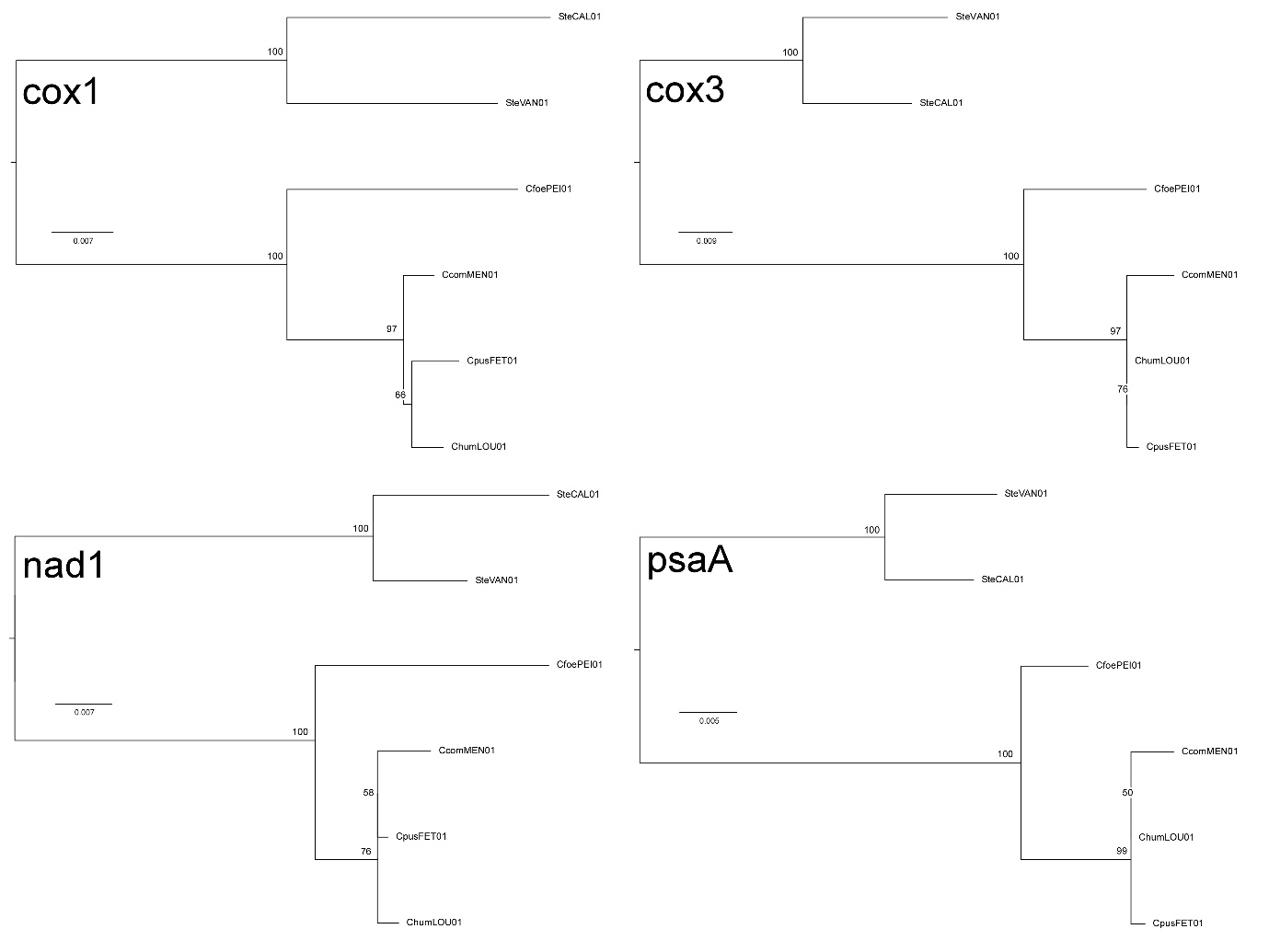
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**Supplementary figure S6**. **General morphology of *Gongolaria* sp. 2. a)** Habitof algae from Sicily (Capo Passero); **b)** Close-up of typically swollen cauloid apexes covered by new developing branches (southern Crete); **c)** Detail of spiny tophule collected from the side of the main cauloid. Scale = 1cm.

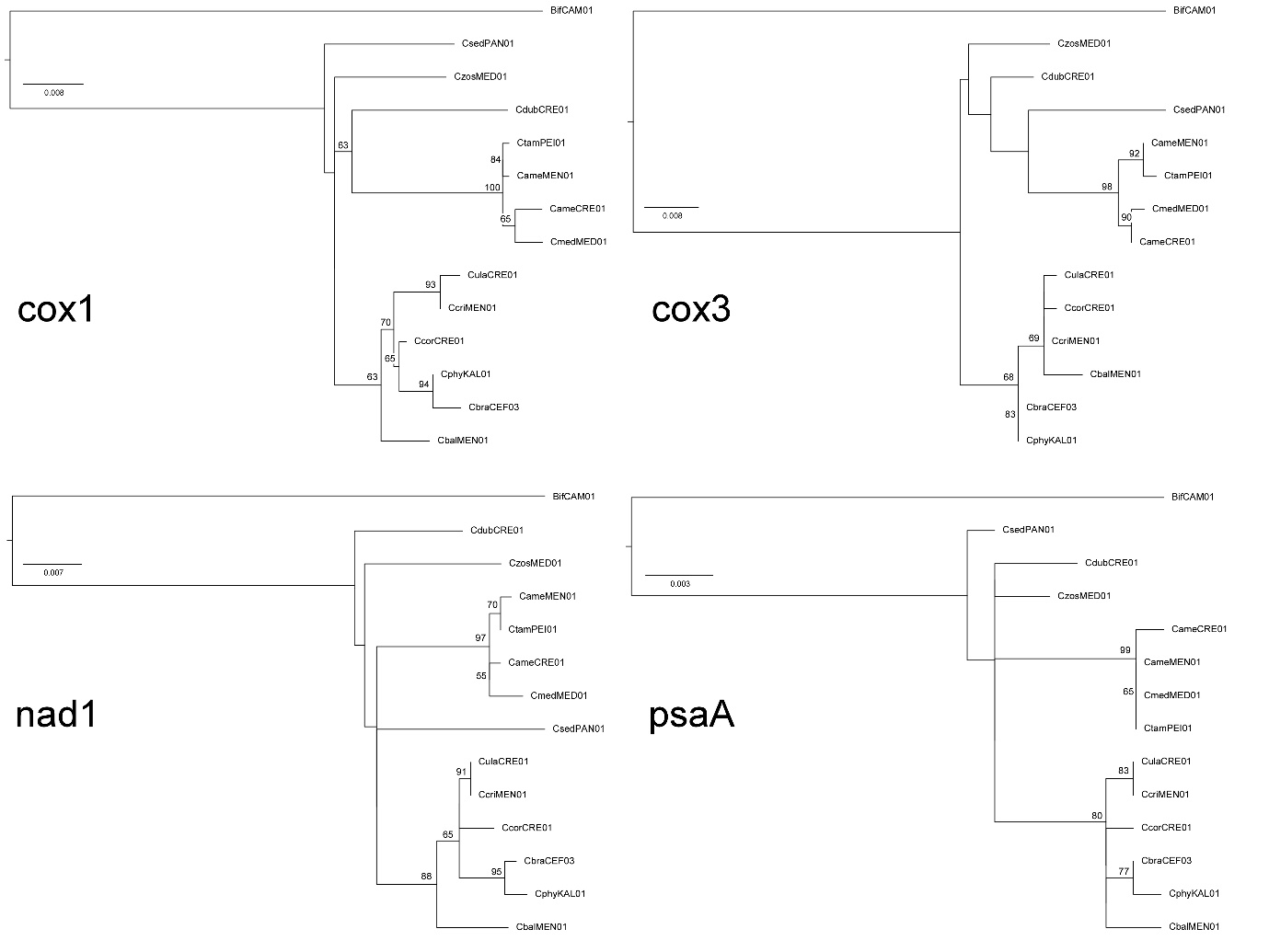
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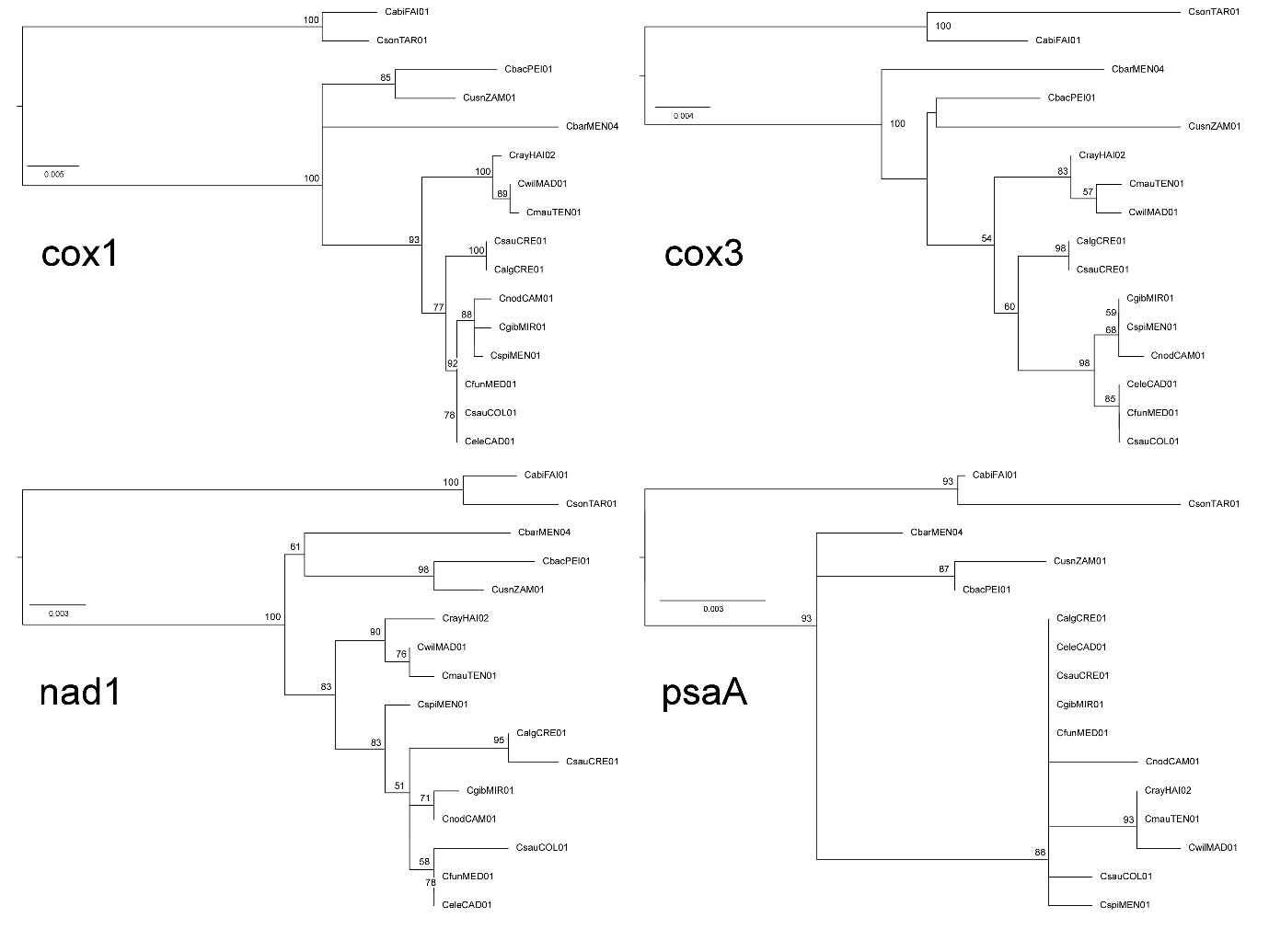
**Supplementary figure S7. General morphology and polymorphism of “*Gongolaria* sp. 1” MOTU. a)** Habit of algae from Madeira Island, **b)** Habit of algae from Tenerife (Canary archipelago), traditionally identified as *G. mauritanica*.



**Supplementary figure S8. Best “single-gene” Maximum Likelihood phylogenetic trees of *Cystoseira* s.s..** Numbers near the nodes are maximum likelihood bootstrap support values (>50).

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**Supplementary figure S9. Best “single-gene” Maximum Likelihood phylogenetic trees of *Ericaria*.** Numbers near the nodes are maximum likelihood bootstrap support values (>50).

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**Supplementary figure S10. Best “single-gene” Maximum Likelihood phylogenetic trees of *Gongolaria*.** Numbers near the nodes are maximum likelihood bootstrap support values (>50).