

# Organisms as ecosystem engineers: the case of amphipod grazers from *Posidonia oceanica* meadows

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## Context & Objectives

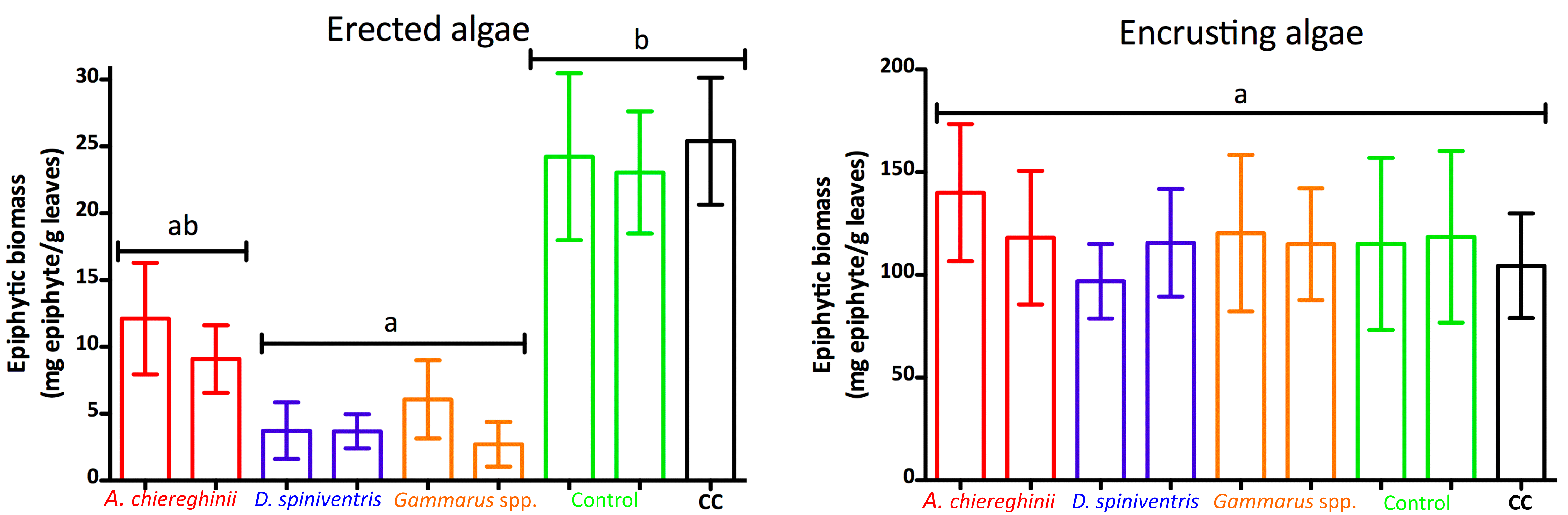
- *Posidonia oceanica*: endemic Mediterranean seagrass, forms large meadows in coastal zones
- Amphipods: one of the **dominant** groups of the vagile fauna from *Posidonia* meadows + some species feed on **macro-epiphytes** from the leaves
- How much epiphytes are consumed? What's the influence of this trophic activity on the **meadow functioning**?

→ Quantify the impact of grazing on the dynamics of the leaves' epiphytic cover

How? Use of monospecific *in situ* microcosms containing rooted, live *P. oceanica* shoots, placed directly in the Calvi bay meadow

## Results & Discussion

### I. Biomass of epiphytic functional groups

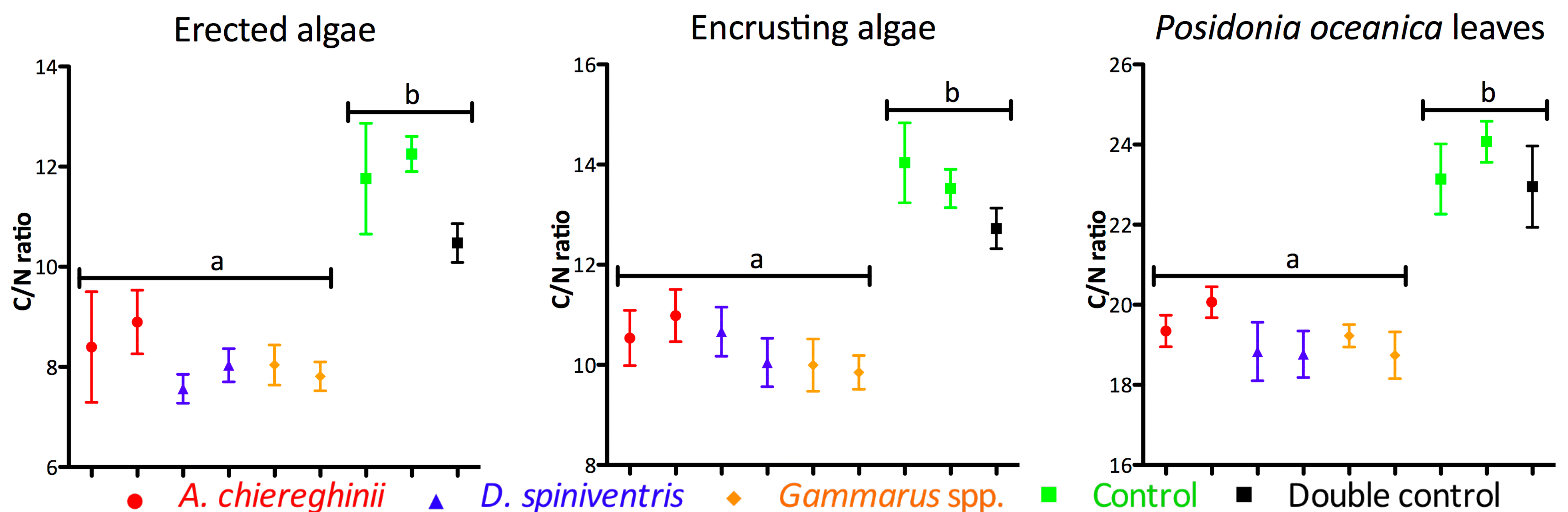


▪ Erected algae & animals: significant depletion by *D. spiniventris* & *Gammarus* spp., strong similar trend with *A. chieraghinii*

▪ Encrusting algae and animals: no consumption by any grazer taxa → Consistent with amphipod mouthpart morphology and feeding behaviour

→ Amphipods can exert **selective top-down control** on epiphytic populations from the seagrass leaves

### II. Elemental composition of epiphytic functional groups & seagrass leaves



▪ Grazing caused **N enrichment** of consumed (erected algae) and non-consumed (encrusting algae & seagrass leaves) vegetal components of the ecosystem in all treatments → Amphipod foraging enhance N (limiting nutrient) availability by sloppy feeding and/or excretion

→ Grazing is more than a simple **interaction** !

## Conclusions

- Amphipods from *P. oceanica* meadows seem to be bound to the epiphytic cover of the leaves by **complex and multilateral trophic interactions**, and have an indirect influence on the seagrass itself
- Amphipods may play an important part in the **functioning** of the epiphyte/seagrass/grazer system of these meadows, and thus act as **ecosystems engineers**.

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