

# Impact of grazing by amphipods on the epiphytic cover of the *Posidonia oceanica* leaves: an *in situ* experiment.

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## Context & objectives

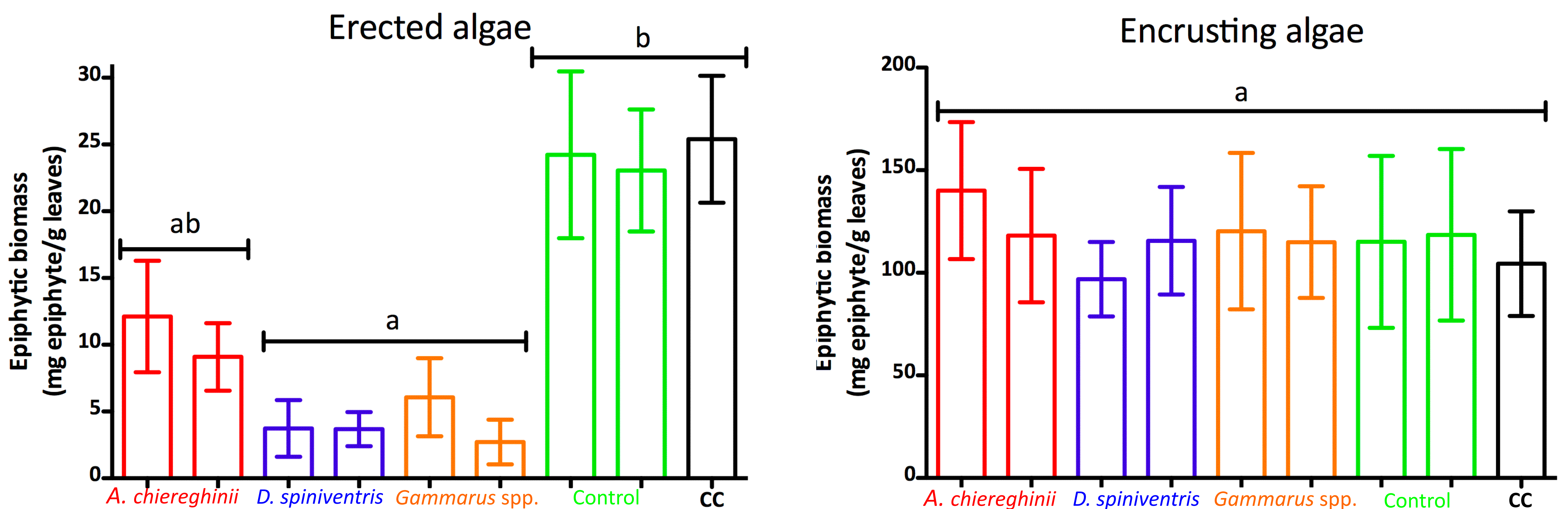
- Amphipods: one of the dominant groups of the vagile fauna from *P. oceanica* meadows + some species feed on macro-epiphytes from the leaves
- How much epiphytes are consumed? What's the influence of this trophic activity on the meadow functioning?
- Quantify the impact of grazing on the dynamics of the leaves' epiphytic cover

## Material & Methods

- Use of *in situ* microcosms containing ~10 *P. oceanica* shoots, placed directly in the Calvi bay meadow at a depth of 10m for 21 days. 5 treatments: 3 grazer taxa (*Apherusa chiereghinii*, *Dexamine spiniventris*, *Gammarus* spp.), 1 control (no grazers) and 1 double control (CC - no grazers, no microcosm).
- Epiphytes classified in 4 functional groups: erected and encrusting animals and algae. Measured parameters: biomass of each functional group, C & N composition of epiphytes and seagrass leaves. Data treatment: Kruskal-Wallis + Dunn's post-hoc.

## Results & discussion

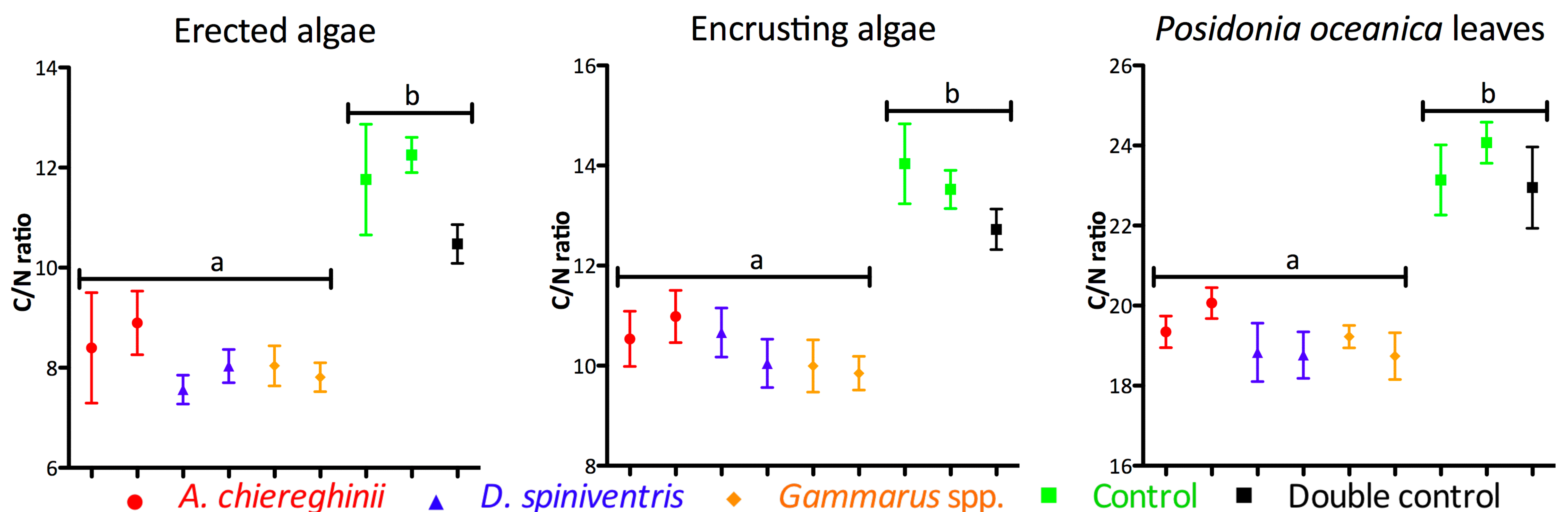
### I. Biomass of epiphytic functional groups



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

- 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 negative 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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