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Résumé en anglais

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**Exploring the diversity of red marine microalgae for the production of exopolysaccharides.**

Microalgae constitute a remarkable biological diversity (approximately 400 000 species) but a limited number of them have been the object of study for their ability to produce exoplysaccharides (EPS). Among them, the red marine microalgae Porphyridium or Rhodella produce sulphated EPS, exhibiting some biological activities with potential interest in the pharmaceutical and cosmetic industries.

EPS from Porphyridium and Rhodella being relatively closed in their structures, it has long been considered that all the red microalgae produced similar EPS. However, the work conducted at IP have shown that the red microalga Flintiella sanguinaria product a polymer of different structure, not sulfated, but methylated and acetylated. The rheological properties of this EPS were also found original, with a viscosity greater than that of xanthan. The objective of the thesis is to explore the diversity of red microalgae for the production of EPS. This group of organisms contains 33 other genera potentially producing EPS. The study will focus on the screening of the strains for the EPS production, the optimization of production conditions in photobioreactor with a focus on the metabolism involved, as well as the structural and rheological characterization.

**Gaignard et al.** (2018) The red microalga *Flintiella sanguinaria* as a new exopolysaccharide producer. J Appl Phycol 30: 2803-14.

**Soanen et al.** (2016) Improvement of exopolysaccharide production by *Porphyridium marinum*. Biores. Technol. 213: 231-8.