

# Nutrients and temperature affect growth and photosynthesis of invasive seaweed *Rugulopteryx okamurae*

Jesús Rosas-Guerrero<sup>1\*</sup>, Raquel Carmona<sup>2</sup>, María Altamirano<sup>1</sup>

<sup>1</sup> Departamento de Botánica y Fisiología Vegetal, Facultad de Ciencias, Campus de Teatinos s/n, Universidad de Málaga, 29080, Málaga, Spain

<sup>2</sup> Departamento de Ecología y Geología, Facultad de Ciencias, Campus de Teatinos s/n, Universidad de Málaga, 29080, Málaga, Spain

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Since *Rugulopteryx okamurae* was identified in 2016 on Spanish coasts, it is producing massive proliferations causing a homogenization on the marine ecosystem and economic impacts. In order to achieve an efficient management of the invasive species, the knowledge of basic aspects of its biology, such as the role of environmental factors on its growth and photosynthetic activity is essential.

In this context, the objective of the present work was to determine the combined effects of nutrients and temperature of growth and photosynthesis of three seasonally observed morphotypes of *R. okamurae*, under controlled laboratory conditions. Wild thalli of *R. okamurae* cultivated for 21 days under four combinations of nutrients concentration ( $\text{NO}_3^-$  and  $\text{PO}_4^{3-}$ ) and temperature (15, 19 and 23 °C). Relative growth rates and photosynthetic parameters estimated from oxygen evolution measurements were determined. The results show that nutrient and temperature are factors that could influence on growth and photosynthesis of the invasive species with differences among morphotypes. These results can be related to the observed seasonal variations of the production of *R. okamurae* and natural cyclic fluctuations of nutrients, which will allow us to identify the vulnerability windows of this species

Presenting author: Jesús Rosas-Guerrero. E-mail: [jrosasguerrero@uma.es](mailto:jrosasguerrero@uma.es)