

HILLARY RIGHINI

My field of research is plant pathology, which may have nothing to do with phycology! However, since I started to work with algae and cyanobacteria, I have found many points of interchange and connection between the two sectors of research. In particular, my experience is in the management of phytopathogenic fungi in horticulture, and the use of algae and cyanobacteria as alternative solutions to synthetic products for plant protection and food safety. I started to work with the use of algae and cyanobacteria more than ten years ago, for my master's thesis in collaboration with the Banco Espanol de Algas (BEA). As a result of the time spent there, a fruitful collaboration began between my research group and the BEA centre in which I worked also for a period abroad during my PhD, and last year with a research contract. Working for a connection of the two sectors has allowed me to get to know an area of research that I was not familiar with, and to exploit phycology in the field of sustainable agriculture. Algae and cyanobacteria are mostly known in the human field, for example in medicine and foods, for animal feed and to produce biofuels. About plants, it is well-known their biostimulant activity but their activity against phytopathogens is not a very deep topic in the literature. I think that this kind of research offers a very practical application and solutions to the replacement of synthetic products used until now in agriculture, and I hope you find it suitable with the aims of the Journal of Phycology.

EDUCATION AND TRAINING

From October to December 2023: consultancy and training activities at the Banco Español de Algas, University of Las Palmas de Gran Canaria (Canary Islands, Spain), under the framework of the project Interreg MAC REBECA-CCT for the promotion of the blue biotechnology in the Macaronesian Region.

From November 2018 to now: Research fellow at DISTAL, University of Bologna.

2018: PhD degree. Judgement: positive. Thesis title: 'Effect and mechanism of action of extracts from algae and cyanobacteria in the control of fungal plant pathogens'.

2017: PhD visiting student at Banco Español de Algas. Research on the use of polysaccharides extracted from algae and cyanobacteria against fungal plant pathogens.

2014: Master's Degree in Agricultural Science and Technology, Curriculum Plant Medicine, University of Bologna. Thesis title: Activity of algal and cyanobacterial extracts against *Podospaera xanthii* on zucchini plant.

2012: scholarship for master's thesis at the Banco Español de Algas. Period: 6 months.

2008: Bachelor's degree in Plant Production Technology, University of Bologna. Thesis title: Sensitivity of *Ampelomyces quisqualis* and *Beauveria bassiana* to fungicides.

Representative Papers:

1. Righini, H., Somma, A., Cetrullo, S. *et al.* Inhibitory activity of aqueous

extracts from *Anabaena minutissima*, *Ecklonia maxima* and *Jania adhaerens* on the cucumber powdery mildew pathogen in vitro and in vivo. *J Appl Phycol* **32**, 3363–3375 (2020). <https://doi.org/10.1007/s10811-020-02160-x>

2. Righini, H.; Francioso, O.; Di Foggia, M.; Quintana, A.M.; Roberti, R. Preliminary Study on the Activity of Phycobiliproteins against *Botrytis cinerea*. *Mar. Drugs* **2020**, *18*, 600. <https://doi.org/10.3390/md18120600>

3. Hillary Righini, Ornella Francioso, Michele Di Foggia, Antonio Prodi, Antera Martel Quintana, Roberta Roberti. Tomato seed bioprimering with water extracts from *Anabaena minutissima*, *Ecklonia maxima* and *Jania adhaerens* as a new agro-ecological option against *Rhizoctonia solani*. *Scientia Horticulturae*, Volume 281, 2021, 109921, ISSN 0304-4238, <https://doi.org/10.1016/j.scienta.2021.109921>.

4. Citation: Righini, H.; Francioso, O.; Martel Quintana, A.; Roberti, R. Cyanobacteria: A Natural Source for Controlling Agricultural Plant Diseases Caused by Fungi and Oomycetes and Improving Plant Growth. *Horticulturae* 2022, *8*, 58. <https://doi.org/10.3390/>

5. Righini, H., Francioso, O., Quintana, A.M. *et al.* New insight on tomato seed priming with *Anabaena minutissima* phycobiliproteins in relation to *Rhizoctonia solani* root rot resistance and seedling growth promotion. *Phytoparasitica* **51**, 763–781 (2023). <https://doi.org/10.1007/s12600-023-01056-z>