

REPORT OF MEETING

Third International Symposium AMMR 2019. Advances in Marine Mussel Research, August, 26–28, 2019, Palazzo Grassi, Chioggia, Italy

Organizers: **L Ballarin, U Rosani and P Venier (Chair)**

International Committee: **N Bierne, Á Pérez Diz, A Figueras, M Gerdol, B Novoa, A Pallavicini, U Rosani and P Venier**

Total 58 delegates, from 14 countries and 30 different cities of the world, gathered in Chioggia (VE) in the occasion of AMMR 2019. The event was organized in partnership by the University of Padova, Department of Biology and School of Biosciences, under the patronage of Veneto Region, the town of Chioggia and the Horizon 2020 project VIVALDI (see other sponsors at <https://www.biologia.unipd.it/ammr-2019>). News and views have been exchanged on i) genetic mussel traits, including a significant molecular evidence of gene presence/absence variation, ii) population markers and evolution of the *Mytilus* species complex, iii) functional mussel responses in relation to potential pathogens and other factors. Innovative experimental strategies applied to marine mussels as well as mussel contributions in goods and services confirm these fascinating marine invertebrates as a model of study and strategic resource for the future. The next AMMR symposium is expected in 2021 in Poland!

Preliminary data on immune priming in the mediterranean mussel *Mytilus galloprovincialis*

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Molluscs, like all the other invertebrate, rely only on innate immunity for their defence. The latter has been traditionally associated with low specificity and lack of immune memory. However, in the last decade, the presence of short-term immune memory, referred to as “immune priming”, was revealed in representatives of various invertebrate phyla.

In the present work, we studied the response of the mussel *Mytilus galloprovincialis* to single or double exposure (second one after 7 days from the first) to the gram-positive bacterium *Bacillus clausii*. One day after the 1st or 2nd exposure, the digestive gland and the gills were collected from exposed and unexposed animals (controls) frozen in liquid nitrogen and stored at -20°C. Haemolymph was also collected from the adductor muscle and haemocytes were obtained by centrifugation and resuspended in filtered seawater (FSW).

The following parameters were measured: superoxide dismutase (SOD) and catalase (CAT) activities on tissues; total haemocyte count (THC), haemocyte volume (HV), haemocyte diameter (HD) and the percentage of phagocytosing cells on haemocytes.

No variations in SOD and CAT activities were observed in exposed animals with respect to their control after a single exposure, whereas a significant decrease in CAT activity was observed after the 2nd exposure. No significant differences in the THC and phagocytosing activity were observed whereas significant increases in HV and HD were observed after the exposures without any significant variations between the two exposures.

Collectively, these data represent a first attempt to study immune priming in *M. galloprovincialis*. Further studies are required using a more appropriate stimulus (*B. clausii* is not a natural pathogen for *M. galloprovincialis*) and changing the interval between the 1st and the 2nd exposure.