Seasonal variation of transcriptomic and biochemical parameters of *Donax trunculus* related to its infection by *Bacciger bacciger* (trematode parasite)

LUÍSA MAGALHÃES[1,2], XAVIER DE MONTAUDOUIN[2], SIMÃO CORREIA[1], GUILLEMINE DAFFE[2], PATRICE GONZALEZ[2], ETELVINA FIGUEIRA[1], JORGE M. S. GONÇALVES[3], ROSA FREITAS[1]

1 Departamento de Biologia & CESAM, Universidade de Aveiro, 3810-193 Aveiro, Portugal
2 Université de Bordeaux, EPOC, UMR 5805 CNRS, 2, rue du Pr Jolyet, F-33120 Arcachon, France
3 Centro de Ciências do Mar - CCMAR, Universidade do Algarve, FCT, Campus de Gambelas, 8005-139 Faro, Portugal

The wedge clam (*Donax trunculus*) is widely distributed along moderately exposed beaches in the Atlantic coast, from France to Senegal. This species has high commercial importance, with the mean capture production of the last ten years of ca. 850 tonnes (50 % represented by Portugal captures). *D. trunculus* populations are modulated by several drivers such as tidal range, temperature, sediment grain size, fishing pressure, predation and parasitism. Regarding parasitism, *D. trunculus* is the first intermediate host of *Bacciger bacciger* (trematode parasite) where the sporocysts develop. The sporocyst is the most damaging stage, reported as responsible of bivalve castration and flesh mass depletion.

In order to test the hypothesis that *B. bacciger* infection modified wedge clam health status, including its biochemical performance and gene expression, organisms were sampled every other month during one year in the Faro beach (Portugal south coast).

The results obtained revealed that *B. bacciger* prevalence ranged between 0 and 28 %, in May and July respectively. Overall, transcriptomic and biochemical results showed that *B. bacciger* induced in *D. trunculus* defence mechanisms against oxidative stress and increased the host metabolism and energy demand, especially in spawning and spent periods.

In conclusion, the present work showed that the markers used can provide additional and ecologically relevant information about, not only the environmental conditions that animals experience

but also on the invasion effects of pathogens. These findings can help to predict organism's chances of reproduction and survival in their natural context, which can be applied in bivalve conservation and disease episodes management.