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EFFECTS OF NOISE EXPOSURE ON A SESSILE INVERTEBRATE, THE ASCIDIAN *CLAVELINA LEPADIFORMIS*

G. Blumer[1], V. Zaffaroni-Caorsi[2], G. Sabbadin[3], I. Guarneri[4], A. Teaca[5], A. Spagnuolo[6], F. Ristoratore[6], G. Zambon[2], M. Chatzigeorgiou[7], L. Manni[4], R. Alsina-Pagès[8], C. Cañestro[9], S. Candiani[10], R. Pennati[1]

[1]*ESP, University of Milano, Milan, Italy*
[2]*DISAT, University of Milano-Bicocca, Italy*
[3]*DiBio, University of Padua, Italy*
[4]*CNR-ISMAR, Venice, Italy*
[5]*INCD GeoEcoMar, Constanta, Romania*
[6]*SZN, Naples, Italy*
[7]*Michael Sars Centre, University of Bergen, Norway*
[8]*HER, La Salle – Universitat Ramon Llull, Barcelona, Spain*
[9]*Department de Genètica, Microbiologia i Estadística and IRBio, Universitat de Barcelona, Spain*
[10]*DISTAV, University of Genoa, Italy*
E-mail: giorgio.blumer@unimi.it

Noise is now considered an emerging pollutant that can affects different aspects of animal life. In particular, it is known that exposure to high frequency sounds can damage ciliated sensory cells and impair their development with consequences on animal behavior. *Clavelina leadiformis* is an ascidian belonging to the aplousobranchia clade, common in the shallow waters of the Mediterranean Sea, such in harbors where the maritime traffic and noise pollution are particular intense. We exposed adults of *C. clavelina* carrying developing embryos for 24 hours to a pink noise (higher intensities at 63-125 Hz), at different levels (120-180dB), in tanks using an underwater speaker. Then, we analyzed the effects on site-selection behaviors of the developed larvae by analyzing the spatial distribution of juveniles attached on the bottom of the tanks. Moreover, we performed a functional, ultrastructural and immuno-histological analysis of the sensory cells of the juveniles in order to identify alterations caused by chronic noise exposure. The results indicated that larvae avoided to settle near the noise source revealing that they can sense the sounds. Moreover, juveniles exposed to noise presented altered responses to sensory cells stimulation and impaired development of ciliated sensory structures as suggested by immunostaining and SEM analysis. These results suggest that studies on noise effects on invertebrate fauna deserve further considerations.

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