

# Journal of Biological Research

Bollettino della Società Italiana di Biologia Sperimentale



**90<sup>th</sup> SIBS National Congress  
on Experimental biology in basic  
and applied research to the environment  
and human health**

**Trapani, Italy, 27-28 October 2017**

ABSTRACT BOOK

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## ALIEN SPECIES: FRIEND OR ENEMY OF ENVIRONMENTAL HEALTH?

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Invasive alien species (IAS) can influence whole ecosystems altering habitats and local biodiversity, modifying the marine activities (including fishing and tourism) and introducing diseases that threaten human health. However, they may have positive impacts on the composition of local fauna and biotic interactions. The record and the spread monitoring in the Mediterranean Sea of the invasive aroid amphipod crustacean *Grandidierella bonnieroides* is an example of positive effect on local biodiversity. In 2014, the species was recorded with explosive abundance along Haifa Bay, in the north of Israeli coast, on soft bottom. Over the last two years, this species has spread throughout the Israeli coast, probably by ship fouling or ballast sediments, showing constant abundance so that it is possible considered established along the Israeli coast and part of the local fauna. The presence of *G. bonnieroides* did not induce a change on assessment of autochthonous species but only an increasing of local biodiversity. Soft bottom biodiversity is commonly lower than hard bottom; so, the new colonization of *G. bonnieroides* as possible read as an increasing of food available for the local fauna that feeding on macrozoobenthos. Finally, considering that this species has a short turn over and large range of tolerance (salinity, temperature and substrate) is a good candidate for food in aquaculture. This study showed that knowledge of invasive species is still underestimated and that, consequently, the direct or indirect introduction of alien species by human activities can bring benefits to local scale and be used as new resource for marine culture.

## ASSESSMENT OF HEAVY METAL CONTAMINATION IN TERRACES FOR PUBLIC USE RECOVERED IN THE CITY OF PALERMO AND IN AGRICULTURAL TERRACES

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The contamination by heavy metals in the soil is nowadays considered an indicator of environmental pollution caused by to several factors, such as waste disposal, industrial discharges and the use of irrigation water. Developed in collaboration with SO.GEST Ambiente Laboratory, in Palermo, this study had as a purpose to monitor the levels of heavy metals - Cd, Cr, Fe, Mn, Pb, Zn -both in public lands and in agricultural terrains. All the soil samples collected have been subjected to an acid extraction process by using HCL and eventually to a mass spectrometer-based analysis for the quantitative/qualitative determination, specifically by the technique of flame atomic absorption spectrophotometer (FAAS) and graphite furnace (GFAAS). From the elaboration of the results, it emerged that all the soils in the city of Palermo feature heavy metals, with the predominance of Cd, Cr and Zn, respectively in the percentages of 5.69%, 64.06%, 1.40% on 60 soil samples analyzed, what is surely due to vehicular traffic, the use of irrigation water and also the use of fertilizers. Lead (Pb), instead, has not been detected in all public

grounds, probably due to the switch-over to the lead-free gasoline, which has reduced the inflow of this metal. Lastly, the confrontation between the two types of soil showed a higher rate of contamination by heavy metals in the agricultural grounds, thus demonstrating how today the use of plant protection products has gained the upper hand, in order to increase agricultural production. In particular, the percentages found are the following: Cd 6.37%, Cr 210.06%, Fe 20.42, Mn 9.35%, Pb 125.1%, Zn 2.04 on 60 samples of soil. Although all metal concentrations have fallen within the limit values of the law, this will not exclude the fact that they are present into the soil and that even though in minimal concentration they are toxic to the man by contact, by ingestion or by respiratory action.

## CONTAMINATION CONTROL OF AFLATOXINS IN MILK INTENDED FOR HUMAN CONSUMPTION: COMPARISON OF DATA OBTAINED BETWEEN 2014 AND 2017

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Aflatoxin M<sub>1</sub> (AFM<sub>1</sub>) is the hydroxylated metabolite on the hepatic level of aflatoxin B<sub>1</sub> (AFB<sub>1</sub>), found in milk when the animal is lactating after ingestion of zootechnical feeds contaminated with aflatoxin B<sub>1</sub>. Exposed with the present work is a study conducted at the laboratory So.gest s.r.l of Palermo, which lasted more than three years, on the presence of Mycotoxins in bovine milk which provenance is from farms in the Sicilian area of Catania, Enna and Caltanissetta in order to determine whether during this period some changes in concentration of aflatoxin M<sub>1</sub> (AFM) have occurred and access if the presence of the toxin is always within the legal limits. The analyzes were conducted with ELISA method on samples of milk just milked, and stored in the refrigerator of the laboratory some samples at 3°C±1°C. The study was carried out on the product to quantify Mycotoxins and ensure compliance with the limit imposed by EC Regulation 1881/2006, published in the EU Official Journal on 20.12.2006. The EC Regulation 1881/2006 establishes for aflatoxin M<sub>1</sub> (AFM<sub>1</sub>) a maximum limit tolerated (LM) of 0.050 µg/kg (50 ppt) for milk and 0.025 µg/kg (25 ppt) for the milk intended for the first childhood. The analyses carried out in these four years have revealed that in all the samples the presence of AFM<sub>1</sub> has been found. In this last period, only one sample was found to have a mycotoxin concentration above the limit required by current regulations.

## AQUACULTURE, IS EVERYTHING ALL RIGHT?

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Nearly half of the fish consumed all over the world comes from intensive sea fish farms, and the percentage is going to rise more and more. Criticalities are known: overexploitation of lesser value fish stocks, which become flour for most valuable species; genetic contamination of free range fish; con-