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Torino, Italy, 6-9 April 2022

ABSTRACT BOOK

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Torino, Italy, 6-9 April 2022

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year of research have allowed us to understand that there is a permanence in life of microorganisms both within the replacement wood and in the catabolites present inside and outside the foraging areas. It was found that the humidity of the replacement wood and the catabolites is related to the duration of the half-life of the viruses present. It has also been noted that the type of wood (therefore the general composition of the rosura and the catabolites) can influence, all other things being equal, the half-life time of the viruses present. From the point of view of the transmissibility of the viruses, given the stomach contents of the collected Scleroderma specimens, it was possible to verify that the microorganisms survive for a certain period and can be transmitted to humans.

THE USE OF NATIVE SPECIES FOR URBAN FORESTRY TO PREVENT ALLERGIES

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The persistence of populations migratory flows from the rural to the urban context certainly alter the habits in the connection with nature and, generally, decrease the quality of life and the well-being of inhabits of cities. The pandemic highlighted how crucial is for citizens the connection with nature and the key role of vegetation in parks and gardens defined as a real cultural heritage to be protected and enhanced. It is not important design and develop new green areas only but also to re-evaluate and re-appropriate existing ones. Urban reforestation projects must not be just green restoration actions, but real systematic and structured programs, which consider the whole territory and its complexity. Each "green" action must be integrated inside the territory and connected with the context. The planting of thousands of new trees in the several development plans requires basic and applied research to have adequate material to effectively perform the required functions such as air purification, climate mitigation, water regulation, environmental rehabilitation, etc. (Anguelovski *et al.* 2018) The identification of native species that can be successfully used for urban landscaping and reforestation in the Mediterranean environment is crucial. Native species have the advantage of already being adapted to the environment in which they will be used, while the exotic species currently used have been selected based on aesthetic characteristics and their resistance, with low consideration of the risks on human health and ecosystem's biodiversity. One of the most underestimated issues is the allergenicity of species used for urban reforestation. Allergies are the result of a hypersensitive response of the immune system to foreign agents, called allergens, which can be represented by very different substances. (Bro ek *et al.*, 2017) In particular, pollen allergies affect the respiratory system and are characterized by seasonality and recurrence during the year, determined by the cycle of plants that produce and release into the environment the different types of pollen, large quantities of which enter the respiratory tract (Lake *et al.*, 2017). Normally this event does not have consequences, whereas in allergic people the release of pollens and their "migration" causes allergic rhinitis, commonly called hay fever, and in more serious cases it can cause real asthma attacks. (Cariñanos, *et al.* 2016.) The best fight against allergy is to try to avoid contact with the allergenic substance. For pollen this is very complicated because it means not staying outdoors during the migration period, closing windows and using air filters and air conditioning systems. In order to avoid the worsening of this problem during urban reforestation programs, it is recommended the introduction of species with low pollen emission and low or no allergenicity.

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METABOLIC EFFECTS OF POLYSTYRENE MICROPLASTICS IN MARINE MUSSELS AFTER SHORT-TERM EXPOSURE

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Over the last 50 years, plastic has saturated our world due to the high demand across all sectors because of its favourable properties. Despite the societal benefits, plastic is today a global concern owing to it is persistence and bioavailability as microplastics (MPs) to aquatic biota. MPs have been found in all compartments of the environment, and numerous life forms are known to take up the anthropogenic particles. Marine filter feeders are particularly susceptible to ingest suspended MPs since their size overlaps with the size of planktonic organisms and sediments, making them bioavailable and thus facilitating their entry into the food chain. In the last years, mussels were used as test organisms in many laboratory studies to assess the ecotoxicological effects induced by MPs, but the majority of these studies covered more than one week of exposure. With the aim to fulfil this research gap and elucidate mechanistic insights into the early toxicity effects of MPs on aquatic invertebrates, this study was designed to conduct a short-term (up to 72 h) exposure to 3 mm red polystyrene MPs (50 particles/mL) in marine mussels *Mytilus galloprovincialis*, selected as model organism because being filter-feeders and thus able to ingest MPs, besides for their commercial relevance. The application of an innovative protonic Nuclear Magnetic Resonance (^{1}H NMR)-based metabolomics, associated to chemometrics, enabled a comprehensive exploration at fixed exposure time-points (T24, T48, T72) of the metabolic effects of MPs accumulated in mussel digestive glands, chosen as the major site for contaminants storage and detoxification processes. Specifically, a Principal Component Analysis (PCA) clearly separated ^{1}H NMR metabolic fingerprints of MP-treated mussels from control, and a clear grouping was observed according to experimental time-points. Numerous metabolites, including amino acids, osmolytes, metabolites involved in energy metabolism, and antioxidants, participating in various metabolic pathways significantly changed over time in MP-exposed mussel digestive glands related to control, reflecting also the fluctuations in MPs accumulation and pointing out the occurrence of disorders in amino acid metabolism, osmotic equilibrium, antioxidant defense system and energy metabolism. Overall, findings from this work elucidate time-dependent metabolic disor-