**T4C: Via Accademia Albertina 13, AULA B**

**28-03-2019 h. 14-18.**

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**14-16. Enrica Pessione**: **Microbial biodeterioration of archeological and historical artefacts: biochemical aspects.**

Microbial deterioration accounts for a significant percentage of the degradation processes that occur on archeological/historical objects and artworks, and identifying the causative agents and their metabolic pathways should be a priority, in consideration of the need to conserve these important cultural heritage items.

The two seminars will illustrate the biochemical aspects of the interactions occurring between microorganisms and nutrients that are present in stones, wood, paper, textiles, films, paintings and modern art specimens (namely, collagen, cellulose, gelatin, albumin, lipids and hydrocarbons). Some examples, highlighting that a good knowledge of these interactions is essential to in-depth understanding the factors that favor colonization, will be discussed.

*Part 2:* Biodeteriorationofstone material: the contribution of autotrophic organisms and syntrophic chains. Painting biodeteriogens: lipolytic, amylolytic, proteolytic, solventogenic, acidogenic and pigment-producing microorganisms. Motion picture films and photographic material biodeterioration: the contribution of gelatine liquefiers. Synthetic polymer-based modern artworks and human history proofs: the risk of xenobiotic-degraders.

**16-18 Mariangela Girlanda and Samuele Voyron**: **Omics approaches as tools for cultural heritage studies**

Omics approaches offer cutting-edge tools for the characterization of cultural heritage materials and the conservation biology of artworks.

Culture-independent methods derived from environmental genomics, assisted by high-throughput DNA sequencing, allow unprecedented yield and resolution in the identification and monitoring of microbial populations (fungi, bacteria and lichens) involved in biodeterioration of works of art.

The study of the microbial biodiversity associated with cultural heritage materials is of crucial interest to prevent their biodeterioration. This session will focus on the use culture independent methods for the evaluation of the microbial biodiversity associated to cultural heritage materials by means DNA metabarcoding techniques (NGS- Next Generation Sequences). A case study will be display: the mycoflora associated to foxing spots on the Terraneo Herbarium (date late 1600). Case studies presented will focus on the use of metabarcoding of fungal communities associated to foxing spots on ancient pape