P2. PERSISTENCE OF DIFFERENT MICROBIAL STRAINS IN PURE AND DILUTED TATTOO INKS

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Aim: To test the ability of some environmental and human microbial species to survive in tattoo inks, an investigation was carried out. Some microbial strains were inoculated in sterile pure tattoo inks and, in order to simulate use conditions, their ability to survive in diluted ink solutions was also tested.

Methods: Known concentrations of specific bacterial strains were added at sterile tattoo inks (e-beam irradiated) and phosphate buffer ink dilutions (1:10 and 1:100 v/v). The following microbial ATCC strains Staphylococcus aureus, Pseudomonas aeruginosa, Bacillus pumilus, Mycobacterium fortuitum, Candida albicans and Fusarium solani were selected and put in. Periodically aliquots were collected and plated on appropriate cultural substrates.

Results: Except for B. pumilus, which survived in undiluted inks for two weeks, all the tested microbial strains had a quick decrease of their densities over 24 hours by their inoculum. Indeed, at 10-1 dilution B. pumilus lived for one month while at 10-2 it survived for more than 40 days. At the same dilutions, F. solani survived until eight months, whilst S. aureus's concentrations dramatically decreased both at 10-1 and 10-2 dilution within one week. At the 10-2 dilution, P. aeruginosa, M. fortuitum, C. albicans concentrations increased of five-magnitude orders respect to the initial inoculum maintaining this concentration for the whole observation period.

Conclusions: Except for B. pumilus, the selected strains showed a low capacity of survival in undiluted ink, associated with the presence of the chemical components of inks. Instead, all the species showed higher chances of survival in diluted inks.