

## 21

### PERSISTENCE AND SURVIVAL OF BACTERIAL STRAINS IN STERILIZED TATTOO INKS

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**Aim:** Verify the microbiological characteristics of sealed tattoo inks and the potential capability of some microorganisms species to survive in them.

**Method:** Sealed tattoo inks were microbiologically tested. Inks were taken under sterile conditions and cultured for the following parameters: Heterotrophs; moulds; anaerobic bacteria; non-tuberculous mycobacteria; *Staphylococcus aureus*; *Pseudomonas aeruginosa*; *Candida albicans*; Gram negative bacteria. Strains isolated were identified by biochemical tests.

Additionally, the survival rate of selected bacterial strains, *S. aureus* and *P. aeruginosa*, in sterile tattoo inks, was monitored. Bacteria were inoculated in undiluted and diluted inks.

**Results / Discussion:** Despite claims of sterility ( $\beta$  ray) on the label, 10 out of 26 sealed inks were contaminated. *Alicyclobacillus acidocaldarius/acidoterrestris*, *Kocuria varians*, *Bacillus cereus*, several species of *Staphylococcus* (*S. auricularis*, *S. hominis hominis*, *S. warneri*, *S. lugdunensis*), anaerobic bacteria, and *Penicillium* were isolated. It was observed that the inoculated strains of *S. aureus* and *P. aeruginosa* were not able to survive in undiluted inks for more than 24 hours. Nevertheless the two strains had different behavior: *S. aureus* concentration even decreased after ink dilution, while *P. aeruginosa* oddly enough survived in high concentration at  $10^{-2}$  dilution for the whole observation period (45 days).

**Conclusion:**  $\beta$  radiation technology seems to have a low capability to inactivate all the microorganisms in tattoo inks. On the other hand, the inability of tested bacteria to survive in undiluted ink confirms this matrix as a very hostile environment. Nevertheless, the ability of *P. aeruginosa* of growing in diluted stored inks makes these products potential vehicles of infection at least for this microorganism.