

Poster Session (P)

Poster Lunch (1)

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HIGH-VALENCE SILVER COMPLEXES REDUCE THE MICROBIOLOGICAL RISK THREATENING THE SAFETY AND HEALTH OF ASTRONAUTS AND INTEGRITY OF SPACECRAFTS IN LONG-TERM TASK

Abstract

Microbial contamination may pollute the cabin environment causing infection in astronauts and inducing bio-degradation of critical materials which may result in system failure. Moreover the microorganisms may mutate under space environment causing serious damages to ecosystem of the earth. Scientists found a great variety of microorganisms in space which thriving and evolving in the closed environments within space vehicles and were hard to remove. Silver antibacterial materials have been widely applied in fields of commodity, filage and medicine because of their efficient, non-toxic and low drug resistance properties. However, high-valence silver antibacterial materials, which have the advantages of better antibacterial performance, resistance the interference of chloridion and well photostability, are being focused and becoming very potential antibacterial materials. High-valence silver oxides are the most widely applied among the high-valence antibacterial materials, but they can easily react with substrate materials of medicine. Especially the Ag_2O_3 , it is very unstable to store. Base on the analysis above, we have synthesized several high-valence silver complexes, and the antibacterial ability for *Escherichia coli* (*E.coli*) and *Staphylococcus aureus* (*S.aureus*) was studied. The results show that the complexes obviously inhibit the growth of bacterias. We hope the high-valence silver complexes could remove the microorganisms in space effectively.