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MICROBIAL CHARACTERIZATION OF THE HUMIDITY CONDENSATE WATER ONBOARD "SHENZHOU-9" MANNED SPACECRAFT IN CHINA

Abstract

Microbial contamination is one of the important aspects polluting water quality onboard the space station. An evaluation of the microbiota from water samples onboard would provide the baseline and reference for designing the microbial controlled strategy. In June of 2012, the humidity condensate water was collected onboard in humidity condensate water collect facility during the Chinese rendezvous and docking mission of "Shenzhou-9" manned spacecraft and "Tiangong-1" target aircraft. After returning to earth, the microbial contaminant of the water sample was analyzed using tradition isolated culture and molecular biological method. Results showed that the bacterial count level of the water sample was 2300000 CFU/ml, and six strain of bacterial of *Sphingomonas paucimobilis*, *Microbacterium sp.*, *Acinetobacter oleivorans*, *Acinetobacter sp.*,*Kocuria kristinae*, *Microbacterium oxydans strain* were isolated and identified. Of which, the strains of *Sphingomonas paucimobilis*, *Acinetobacter sp.*, *Kocuria kristinae* were pathogenic bacteria and the strains of *Acinetobacter oleivorans* and *Microbacterium oxydans strain* were material decomposing bacteria.