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Author: Dr. Irina Shumilina

Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russian Federation,  
ishumilina@mail.ru

Prof. Vyacheslav Ilyin

Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russian Federation,  
ilyin@imbp.ru

STUDY OF THE COMPOSITION OF GARBAGE AND ESTIMATION OF THE MASS OF WASTE  
FROM THE YEAR-LONG ISOLATION EXPERIMENT WITHIN THE FRAMEWORK OF THE  
SIRIUS PROJECT.

**Abstract**

Various wastes generate during the life and activities of cosmonauts and astronauts in space flight conditions, on spaceships and stations, for example, on the International Space Station (the ISS). Space waste is waste from crew members and space activities (urine, feces, sweat, saliva, nails, hair, used water, garbage, etc.) Waste can accumulate in large quantities, deteriorate, and if not disposed of, the waste can interfere with the scientific programs of space missions. Existing or advanced waste collectors, space systems for storage, disposal, waste transportation, systems of regeneration are functioning and designed for space flight conditions. However, a large amount of various garbage (cans, used personal hygiene products, packaging, old clothes, etc.) are thrown away. During the implementation of the year-long isolation experiment within the framework of the SIRIUS project, we conducted a study of the composition of the garbage that is sluiced by the crew. We regularly collected garbage of class A from the crew for the year-long isolation experiment of the SIRIUS project over the course of a month, disassembled and weighed all the garbage and its components. The total daily weight of bags of garbage from the year-long isolation experiment "SIRIUS-23" averaged about 2 kg. We divided the contents of garbage bags into five fractions, which, as a percentage of the garbage, averaged: 1) Iron, foil, glass (36%) - iron cans, foil bags out of juices, cereals, soups, tea, coffee, foil pieces from packaging, etc. 2) Sanitary waste (28%) - pieces of used paper towels, napkins, used cotton pads, non-woven napkins, cotton swabs, sanitary pads, tampons, dental floss, etc. 3) Leftover food (14%) - apple cores, half-eaten food, cookie crumbs, used tea bags. 4) Paper, cardboard (16%) - cardboard boxes, cardboard from packaging, paper, etc. 5) Cellophane, plastic (16%) - cellophane packaging, plastic, envelopes from daily feminine sanitary pads, tampons, etc. We specially selected sanitary waste separately as part of the study of the Mcb-1 experiment of the scientific program of the SIRIUS project for their subsequent sterilization and possible biodegradation. We assessed the composition, quantity and quality of garbage, waste from the year-long isolation experiment of the SIRIUS project during the study, which can be useful for creating regeneration systems for interplanetary manned space flights and creating stations on the Moon, Mars, etc.