Paper ID: 87291
oral

IAF/IAA SPACE LIFE SCIENCES SYMPOSIUM (A1)
Interactive Presentations - IAF/IAA SPACE LIFE SCIENCES SYMPOSIUM (IPB)

Author: Dr. Marta Del Bianco
Italian Space Agency (ASI), Italy

Dr. Gabriele Mascetti
Italian Space Agency (ASI), Italy
Mr. Stefano Polato
Italy
Dr. Sara Rocci Denis
Germany
Dr. Raimondo Fortezza
Telespazio S.p.A., Italy
Dr. Cinzia Benincasa
Italy
Dr. Elvira Romano
Italy
Dr. Massimiliano Pellegrino
Italy
Dr. Enzo Perri
Italy

EXTRA-VIRGIN OLIVE OIL AS A COUNTERMEASURE FOR THE EFFECTS OF SPACE ON HUMAN HEALTH

Abstract

The space environment, characterised by high dose of radiation and microgravity, is challenging for all biological systems, including humans. Extra-virgin olive oil (EVOO) has multiple beneficial effects on human health due to its content of antioxidants and essential fats, and could represent a food countermeasure for long duration space missions. The Extra-Virgin Olive Oil (EVOO) in Space project is studying the effects of exposure to the extra-terrestrial environment, inside a pressurized habitat, on extra-virgin olive oil.

Three samples of high-quality Italian extra-virgin olive oil were flown onboard the ISS and downloaded at 6-month increments. Physicochemical, sensorial and nutritional analyses were carried out on extra virgin olive oil before and after flight and compared to controls kept on the ground to determine the effects of the exposure to the space environment. The project is shedding new light on the olive oil composition and shelf-life in space and gathering new information regarding the hardware currently in use onboard the ISS.

The results could open the possibility of using EVOO as countermeasure for long duration missions. For these long space travels, EVOO would need to sustain the radiation exposure and maintain those characteristics that are beneficial for astronauts' health.