SPACE LIFE SCIENCES SYMPOSIUM (A1)
Life Support, habitats and EVA Systems (7)

Author: Dr. Natalia Tikhomirova
Institute of Biophysics, Russian Academy of Sciences (RAS), Siberian State Aerospace University, Russian Federation

Dr. Sofya Ushakova
Institute of Biophysics, Russian Academy of Sciences (RAS), Siberian State Aerospace University, Russian Federation
Dr. Vladimir Velichko
Institute of Biophysics, Russian Academy of Sciences (RAS), Siberian State Aerospace University, Russian Federation
Dr. Galina Kalacheva
IBP SB RAS, Russian Federation
Prof. Alexander A. Tikhomirov
Institute of Biophysics, Russian Academy of Sciences (RAS), Siberian State Aerospace University, Russian Federation

CHARACTERISTICS OF PLANTS MINERAL NUTRITION IN BIO-TECHNICAL LIFE SUPPORT SYSTEM WITH HUMAN WASTES INCLUSION IN MASS EXCHANGE

Abstract

Investigation of the possibility of the plants mineral nutrition optimization by ion-exchange substrates (IES) use at plants cultivation on the nutrient solutions prepared on the basis of oxidized human wastes is considered in the given work as applied to bio-technical life support systems. It is shown that IES introduction into the root-inhabited substrate favors enhancement of the wheat and collards vegetative organs growth and does not result in decrease of grain yield. On the contrary, IES introduction into the nutrient solution does not influence on vegetative organs growth but contributes to normalization of the conditions of wheat productive organs formation. Hereby it is necessary to take into consideration specific difference of growth and development of the plants and possibility of multiple recoveries of IES on the basis of mineralization products of human wastes at choice of technique of the plants mineral nutrition conditions correction by means of IES.