

## «Lipas» Experiment

**LIPID PEROXIDATION INTENSITY AND ANTIOXIDANT SYSTEM STATE  
IN PLANTS UNDER MICROGRAVITY****Baranenko V. V.**

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Effects of altered gravity on lipid peroxidation intensity and state of antioxidative defence system in pea seedlings will be studied. The main objectives are the following:

- to study lipid peroxidation intensity in the leaf and root homogenates of pea seedlings and in the cell compartments (chloroplasts, mitochondria and cytosolic fractions) under altered gravity;
- to study the activity of enzymatic antioxidants such as superoxide dismutase and catalase;
- to study the activity of the low molecular weight antioxidants such as glutathione and carotenoids.

The level of lipid peroxidation will be measured both in terms of malonic dialdehyde content and by chemiluminescence. An activity of enzyme and non-enzyme antioxidants will be determined by the methods of biochemistry and spectrophotometry.

The features of lipid peroxidation processes, as well as a state of the defence system in plant tissues under conditions of the real and simulated microgravity will be established. Recommendations will be worked out on enhancement of the plant resistance in space flight using the exogenous antioxidant.

## «Fragmentation» Experiment

**INFLUENCE OF SPACE FLIGHT FACTORS ON THE INTEGRITY  
AND ORGANIZATION OF NUCLEAR DNA****Sorochinsky B. V.**

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This study concerns the influence of microgravity and physical modification on plant's DNA pattern. DNA single- and double brakes will be analyzed both for embryos in seeds and for proliferative tissues of maize and pine seedlings. The material of plants will be fixed in different periods during

the ISS flight for further analysis after landing. Hydroxylapatite chromatography and pulsed-field electrophoresis will be used to detect DNA damage. Obtained results will be necessary to determine genotoxicity depending on the space missions duration.