of coleoptiles' segments was subjected to a damaging heating at 46°C for 10 min. In some variants, 2 hours before NaHS was added, calcium antagonists were added to the coleoptiles' incubation medium: an extracellular calcium chelator EGTA (50 μM) and an inhibitor of phospholipase-C-dependent inositol-1,4,5-triphosphate (IP_3) formation neomycin (40 μM).

After 24 hours of incubation of coleoptiles in medium with the hydrogen sulfide donor, an increase in the activity of SOD, catalase and GPO and an increase in the resistance of coleoptiles to damaging heating were noted. These effects were almost completely suppressed in the presence of EGTA and neomycin. It can be assumed that in plant cells under the influence of exogenous hydrogen sulfide, there is an increase in the intake of calcium into cytosol both from extracellular space (a process that is inhibited by EGTA) and from intracellular compartments (a process dependent on IP_3 and suppressed by neomycin). The signal comprising changes in calcium and ROS content in cells induces an antioxidant system of cells, which can be important for the development of their heat resistance. It is quite natural that the antioxidant system is not the only protective system that was induced by exogenous hydrogen sulfide in plant cells. To assess the contribution of various protective systems to the realization of the effect of inducing resistance of plant objects to stressors by hydrogen sulfide, special studies are needed.

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ANALYSES OF SOIL MICROBIAL COMMUNITIES AND ESTIMATION OF RHIZOSPHERE INTERACTIONS

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Soil is a key factor for ecosystem development and it contributes to determination of the plant cover. Microorganisms play essential role in the soil functions and ecosystem services. In this contribution we review of methods for assessment of soil microbial communities and their metabolic characteristics. Special focus is given to methods of analytical chemistry, especially analysis of phospholipid fatty acids (PLFA). For illustration results of a few studies involving plant-microbe relations are presented such as phytoremediation with second generation biofuel crops, reclamation of post-mining sites or biotope valuation-soil microbe characteristics.

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Арапетьян Е.

ВИКОРИСТАННЯ РІДКОГО АЗОТУ ДЛЯ ЗБЕРІГАННЯ РОСЛИННОГО МАТЕРІАЛУ

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Arapetyan E. USING of LIQUID NITROGEN FOR PRESERVATION PLANT MATERIAL. Cryopreservation is the modern approach to long-term storage of plant material with the preservation of its biological characteristics. Cryopreservation implies storage of