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VESTNIC TOMSK STATE UNIVERCITY. BIOLOGY
SCIENTIFIC PERIODICAL
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SUMMARIES

BOTANICA

Sviridova T.P., Zinner N.S. **Prospects of cultivation *Hedysarum alpinum* L. and *Hedysarum theinum* Krasnob. in conditions of Tomsk region.** Data obtained results of introduction two valuable herbs: *Hedysarum alpinum* L. and *Hedysarum theinum* Krasnob. Biological features are considered at cultivation in conditions of culture in the south of Tomsk region. The rhythm of seasonal development, the contents flavonoids in an underground part of plants are investigated, germination of seeds, seed and raw productivity.

BIOTECHNOLOGY

Dorofeev V.Yu., Karnachuk R.A., Shilova I.V. **Element structure of Clematis Siberian (*Atragene speciosa* Weinm.) callus culture cells *in vitro.*** For the first time the structure of elements in Clematis Siberian callus long growing culture cells on Murashige and Skoog medium in darkness is shown. At research qualitative and quantitative structure of microelements in Atragene speciosa Weinm. callus culture of 44 subculture a number of preferable accumulation of elements by callus cells is made. On the basis of data of the analysis the method issue spectrometry and literary leads comparison of the maintenance of the elements which have been found out in callus cells and a wild-growing plant accordingly.

Lavrent'eva L.V., Avdeev S.M., Sosnin E.A., Velichevskaya K.Yu. **Analysis of excilamps UV radiation bactericide action on pure microorganism cultures.** The comparative study of several modern excilamps and low-pressure Hg-lamp radiation impact on pure bacterial cultures of E. coli, Staphylococcus and extracted from water and human skin and mucosal tunic f. Pseudomonas, f. Bacillas, f. Sarcina are presented. It is shown that in any case we obtained pronounced UV-lamp radiation effect to all abovementioned microorganisms. The UV sensitivity of microorganisms under the action of UV irradiation has been varied.

Minaeva O.M., Akimova E.E., Semenov S.Y. **Antagonistic effect on phytopatogenic fungi and stimulation influence on growth and development of plants by bacteria *Pseudomonas* sp. B-6798 utilizing formaldehyde.** This survey shows kinetic aspects of interrelations of bacteria *Pseudomonas* sp. B-6798 with plant-host and phytopatogenic fungi. Inhibition kinetics of growth of fungi *Fusarium* and *Bipolaris* by bacteria is described by modifying equation of N.D. Ierusalimsky. Quantitative antifungal effect of bacterial strains under laboratory experiments can be estimated with the help of the constant of inhibition (Ki).

It is found that the dependence of plant growth and development parameters from the logarithm of bacteria concentration in inoculum in laboratory tests, as a rule, appears as a convex curve with extremum. In field experiments we revealed stimulation of growth and development of oat, wheat and maize under the influence of bacteria *Pseudomonas* sp. B–6798. The conducted laboratory tests and field experiments give an opportunity to recommend using bacteria *Pseudomonas* sp. B-6798 as biofungicide against root rot pathogens on grains which has, at the same time, properties stimulating plant growth and development.

PLANTS PROTECTION

Kuznetsova N.P. **Complex system of protection greenhouse plants from pests and diseases in Siberian botanical gardens of Tomsk state university.** This article summarize long-term researches on working out of complex system of protection plants from pests and diseases are generalized in view of ecological features of greenhouse complex. For the first time in Siberia the opportunity of application for protection plants cultivated spices from word flora, involved from tropical regions and biological method with use of useful insects is established.

CYTOLOGY AND GENETIC

Malakhova L.A., Amelchenko V.P., Kataeva T.N. **Cytological research of the rare plants of Tomsk region in Siberian Botanical gardens – methodical basis for the preservation their biodiversity.** Sum up of cytological studies of the rare plants of Tomsk region in the culture and natural populations on the south region for the 30-years period. The date on the numbers of chromosomes presents in tables. Generalize the modern literature about the numbers of chromosomes.

SOIL SCIENCE AND FORESTRY

Seredina B.P., Androhanov V.A., Alekseeva T.P., Sysoeva L.N., Burmistrova T.I., Trunova N.M. **Ecological aspects of biological recultivation soil of Kuzbass technogenic ecosystem.** It has been observed soils ecological condition of formation and features technogenic land scape of Kuzbass. It has bee revealed functioning specific peculiaritys of embriozeme within the bounds of Krasnobrodsk's coal strip mine. On basis of fields survey and experimental study it has been established peat dust efficacy for mine tip biological recultivation of solid refuse.

Tereshchenko N.N., Bubina A.B., Pisarenko S.V. **Effectiveness of peat and mineral and organic vermicompost containing soil mixture.** Effectiveness of a number of peat and mineral and organic vermicompost containing soil mixture was analyzed. The best indexes of vegetative growth of tomato seedlings were provided by soil mixture «Garant» and peat organic soil, containing 25% of vermicompost. Soil mixture «Charodei», containing humus, also provided good indexes of tomato growth and seed germination; soil mixture «Fart» appeared to be less

effective because of intensive plant growth and development inhibition. To observe consumer rights, soil mixture quality control is important; main criteria together with chemical and sanitary and epidemiological properties showed are microbiological indexes: essential and potential activity of azotobacter, number of nitrogen-fixing and phosphate mobilizing bacteria.

ECOLOGY

Vorobiev D.S., Frank Y.A., Zalozny N.A., Lushnikov S.V, Stupakova L.P. **To the question of *Limnodrilus hoffmeisteri* (*Oligochaeta*, Tubificidae) tolerance to oil contamination.** The work is devoted to investigation of *Tubificidae* worms' activity in oil polluted bottom sediments. During laboratory experiment with *Limnodrilus hoffmeisteri* we observed the highest fecundity of worms in presence of oil. It has been shown that aeration influenced worms' surviving, but the maximum surviving has been detected at 3–4 g oil per kg in all cases.