



Best Western Plus Atakent Park Hotel  
28-30 мая 2014 г., Алматы, Казахстан

**МЕЖДУНАРОДНАЯ НАУЧНАЯ КОНФЕРЕНЦИЯ  
ПО БИОЛОГИИ И БИОТЕХНОЛОГИИ РАСТЕНИЙ**

Best Western Plus Atakent Park Hotel  
Қазақстан, Алматы қ. 2014 жылының 28-30 мамыр аралығы

**ӨСІМДІКТЕР БИОЛОГИЯСЫ ЖӘНЕ  
БИОТЕХНОЛОГИЯСЫ БОЙЫНША ХАЛЫҚАРАЛЫҚ ФЫЛЫМИ  
КОНФЕРЕНЦИЯ**

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***MATERIALS PROCEEDINGS MATERIALS***

Best Western Plus Atakent Park Hotel  
May 28-30, 2014, Almaty, Kazakhstan

**PLANT BIOLOGY AND BIOTECHNOLOGY  
INTERNATIONAL CONFERENCE**



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**РАСТЕНИЙ**  
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**PROCEEDINGS**

**МАТЕРИАЛЫ**

**МАТЕРИАЛДАР**

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**PLANT BIOLOGY AND BIOTECHNOLOGY**  
**INTERNATIONAL CONFERENCE**

Министерство образования и науки Республики Казахстан  
Комитет науки

**ИНСТИТУТ БИОЛОГИИ И БИОТЕХНОЛОГИИ РАСТЕНИЙ**

Қазақстан Республикасы Білім және Ғылым Министрлігі  
Ғылым комитеті

**ӨСІМДІКТЕР БИОЛОГИЯСЫ ЖӘНЕ БИОТЕХНОЛОГИЯСЫ ИНСТИТУТЫ**

MINISTRY OF EDUCATION AND SCIENCES OF THE REPUBLIC OF KAZAKHSTAN  
COMMITTEE OF SCIENCE

**INSTITUTE OF PLANT BIOLOGY AND BIOTECHNOLOGY**

**IPRB**

MICROCLONAL PROPAGATION OF THE RARE ENDANGERED SPECIES  
OF THE RUBBER PLANT TAU-SAGYZ (*SCORZONERA TAU-SAGHYZ* LIPSCH.  
ET BOSSE) FOR THE RESTORATION OF PLANT POPULATION IN THE  
KARATAU NATIONAL NATURAL PARK

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In present time, the growing demand in the world to natural rubber, forced researchers to search alternative, in addition Hevea (*Hevea brasiliensis*), sources of natural rubber. Since 1929-1930 years in our Republic, when studied mountain systems of the Southern Kazakhstan it was found that the Karatau mountain is the homeland of new excellent and unsurpassed still a rubber plant - Tau-sagyz. However, stocks of rubber plants were strongly decrease in premilitary and especially in military years (1941-1945 years). In those time more than 12 million roots, by dry weight about 908 ton were dug out. Applicable to rubber it means 250-300 tonn - contribution of Kazakhstan to country defense. Since 1978 year *Scorzonera tau-saghyz* was included in the Red List USSR and in the Red List Kazakh Soviet Social Republic

Rubber plant Tau-sagyz (*Scorzonera tau-saghyz* Lipsch. et Bosse) is plant from family Asteraceae, a rare, endemic species with a reduced amount on the disjunctive Tyan-shan-Pamir-Altay area, an including row of the narrow local races of a different rank. Perennial plant 25 - 40 sm high, with the powerful branching caudexes and deep rod root. Each branch of caudex comes to an end with the socket of leaves witch forms as cereals, sometimes with one-year-old flower escapes. Baskets are single, flowers - yellow. At a break of a root and stem in the lacteal cells are visible elastic, lasting threads of rubber. The content of rubber in roots is about 20 - 40% of the dry weight of roots it depend on an age and a cultivar.

From behind of limitation of rubber plants, practical absence of nurseries on their production in Kazakhstan, the technology of the mass and quickly propagation, in particular, the technology of clonal propagation of valuable rubber culture *Scorzonera tau-saghyz* is one of the actual task for Kazakhstan. The experiments according introduction of tau-sagyz plants *in vitro* were carry out during active plants vegetation (May-June). As explant for cultivation *in vitro* have been used the leaf segments taken with from active vegetable plants (1-2 old escapes), root segments of the same plants and seeds.

The physiological statement of explants and compound of a medium influence on an efficiency *in vitro* cultivation. The roots tissue of one-year-old plants have more ability to a morphogenesis, than roots of two-year-old plants of Tau-sagyz. Kseromorphed leaves one - and two-year-old plants of Tau-sagyz are high-differentiated (highly specialized), therefore they have low level of ability to dedifferentiation processes *in vitro*. Optimal medium for induction of a morphogenesis in culture of leaf and root explant was MS medium (Murasige-Skug medium) containing 1 mg/l BAP, 0,1 mg/l NAA, 0,1 mg/l 2,4-D. Addition of gibberell acid positively influence on plant regeneration from callus biomass Tau-sagyz. The received plant-regenerants in the subsequent cloned for increase reproduction coefficient of Tau-sagyz.

Thus, the presented results confirm a possibility of receiving Tau-sagyz microclones and there are a base for development unique technology of microclonal propagation and creation a collection of Tau-sagyz samples, representing scientific and commercial interest.

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