

EDITORIAL BOARD

I.V. SAVCHENKO (Moscow, Russia) — Chairman (plant biology)

- | | |
|--|---|
| BESPALOVA L.A. (Krasnodar, Russia) | LITVINOV S.S. (Moscow, Russia) |
| DRAGAVTSEV V.A. (St. Petersburg, Russia) | LUGTENBERG E.J.J. (Leiden,
The Netherlands) |
| DZYUBENKO N.I. (St. Petersburg, Russia) | LUKOMETS V.M. (Krasnodar, Russia) |
| FEDOROVA L.M. (editor-in-chief)
(Moscow, Russia) | PIVOVAROV V.F. (Moscow, Russia) |
| GONCHARENKO A.A. (Moscow, Russia) | SANDUKHADZE B.I. (Moscow, Russia) |
| GORBACHEV I.V. (Moscow, Russia) | SEDOV E.N. (Orel, Russia) |
| KHARITONOV E.M. (Krasnodar, Russia) | SHABALA S. (Tasmania, Australia) |
| KHOTYLEVA L.V. (Minsk, Belorussia) | TIGERSTEDT P.M.A. (Esbo, Finland) |
| KORPELA T. (Turku, Finland) | TIKHONOVICH I.A. (St. Petersburg, Russia) |

Covered in Scopus, Web of Science (BIOSIS Previews, Biological Abstracts, Russian Science Citation Index), Agris

Science editors: E.V. Karaseva, L.M. Fedorova

Publisher: Agricultural Biology Editorial Office NPO

Address: build. 16/1, office 36, pr. Polesskii, Moscow, 125367 Russia

Tel: + 7 (916) 027-09-12

E-mail: felami@mail.ru, elein-k@yandex.ru **Internet:** <http://www.agrobiology.ru>



For citation: Agricultural Biology,

Сельскохозяйственная биология, Sel'skokhozyaistvennaya biologiya

ISSN 0131-6397 (Russian ed. Print)

ISSN 2313-4836 (Russian ed. Online)

ISSN 2412-0324 (English ed. Online)

© Agricultural Biology Editorial Office (Редакция журнала

«Сельскохозяйственная биология»), 2017

CONTENTS

FUTURE AGRICULTURE SYSTEMS

<i>Tyutereva E.V., Dmitrieva V.A., Voitsekhovskaja O.V.</i> Chlorophyll b as a source of signals steering plant development (review)	843
<i>Ilina E.L., Kiryushkin A.S., Tsyganov V.E. et al.</i> Molecular, genetic and hormonal outlook in root branching (review)	856
<i>Kliukova M.S., Zhukov V.A., Tikhonovich I.A.</i> NCR peptides — plant effectors governing terminal differentiation of nodule bacteria into the symbiotic form (review)	869
<i>Ivanova K.A., Tsyganov V.E.</i> Antioxidant defense system in symbiotic nodules of legumes (review)	878
<i>Lenivtseva M.S., Radchenko E.E., Kuznetsova A.P.</i> Genetic diversity of stone fruit varieties (genus <i>Prunus</i> L.) resistant to leaf spot (review)	895
<i>Vishnyakova A., Seferova I.V., Samsonova M.G.</i> Genetic sources required for soybean breeding in the context of new biotechnologies (review)	905
<i>Samarina L.S., Malyarovskaya V.I., Rogozhina E.V. et al.</i> Endophytes, as promoters of in vitro plant growth (review)	917

GENETIC RESOURCES, INTROGRESSION, IMMUNITY

(toward 130th Anniversary of N.I. Vavilov)

<i>Roumiantseva M.L., Muntyan V.S., Cherkasova M.E. et al.</i> A comparative analysis of genomic characters of reference <i>Sinorhizobium meliloti</i> strains, the alfalfa symbionts (review)	928
<i>Breton C., Kiru S.D., Berville A. et al.</i> Breeding of Jerusalem artichoke with the desired traits for different directions of use: retrospective, approaches, and prospects (review)	940
<i>Anisimova I.N., Ryabova D.N., Malinovskaya E.V. et al.</i> Polymorphism of grain sorghum from VIR world collection for the characters associated with the CMS-Rf genetic system	952
<i>Zoteyeva N.M., Antonova O.Yu., Klimenko N.S. et al.</i> Facilitation of introgressive hybridization of wild polyploid Mexican potato species using DNA markers of <i>R</i> genes and of different cytoplasmic types	964
<i>Vishnyakova M.A., Burlyayeva M.O., Bulyntsev S.V. et al.</i> Chickpea landraces from centers of the crop origin: diversity and differences	976
<i>Orina A.S., Gavrilova O.P., Gagkaeva T.Yu. et al.</i> Symbiotic relationships between aggressive <i>Fusarium</i> and <i>Alternaria</i> fungi colonizing oat grain	986

SYMBIOGENETICS

<i>Karasev E.S., Chizhevskaya E.P., Simarov B.V. et al.</i> Comparative phylogenetic analysis of symbiotic genes of different nodule bacteria groups using the metatrees method	995
<i>Sazanova A.L., Kuznetsova I.G., Safronova V.I. et al.</i> Study of the genetic diversity of microsymbionts isolated from <i>Hedysarum gmelinii</i> subsp. <i>setigerum</i> , growing in the Baikal Lake region	1004
<i>Kirienko A.N., Leppyanen I.V., Gribchenko E.S. et al.</i> Features of protein isolation for pea <i>Pisum sativum</i> L. root proteome analysis during symbiosis with Rhizobia	1012

BIOFORTIFICATION

<i>Mamedov M.I., Pishnaya O.N., Baikov A.A. et al.</i> Antioxidant contents of pepper <i>Capsicum</i> spp. for use in biofortification	1021
<i>Gins M.S., Gins V.K., Motyleva S.M. et al.</i> Metabolites with antioxidant and protective functions from leaves of vegetable amaranth (<i>Amaranthus tricolor</i> L.)	1030

GENETIC AND PHYSIOLOGICAL BASIS OF CROP BREEDING

<i>Ponomareva M.L., Ponomarev S.N., Tagirov M.Sh. et al.</i> Pentosan content genotypic variability in winter rye grain	1041
<i>Pivovarov V.F., Balashova I.T., Sirota S.M. et al.</i> Analysis of hybridization effect by the appearance of target tomato traits in F ₂ , F ₃ progenies in breeding for multi circle hydroponics	1049
<i>Panfilova O.V., Golyaeva O.D.</i> Physiological features of red currant varieties and selected seedling adaptation to drought and high temperature	1056