

Solovyova A. E., Sokolova D. V., Piskunova T. M., Artemyeva A. M. NUTRIENTS AND BIOACTIVE COMPOUNDS IN VEGETABLE CROPS AND THEIR ROLE IN FOOD QUALITY IMPROVEMENT.

Proceedings on applied botany, genetics and breeding. Vol. 175. I. 2. 2014. pp.5–19.

Biochemical analysis has been performed to study the accessions of white cabbage, cauliflower, red beet and pumpkin from the VIR world collection. As a result, specific features have been revealed to characterize accumulation of numerous biochemical structure components: dry matter weight, the content of protein, ascorbic acid, sugars, carotenoids, carotenes, β -carotene, chlorophylls, betanin, amino acids, organic acids, fatty acids, phenolic compounds, and pectins. Application of the gas-liquid chromatography technique made it possible to proceed from data summation to qualitative and quantitative analyses of specific compounds. Regularities have been found in the pattern of accumulation of the studied biochemical structure components, depending on botanical and geographical attribution of each accession. High content of amino acids, including essential ones, has been identified in a number of *Brassica* accessions and those of beet. The highest content of pectins and protopectins has been found in squash accessions.

Key words: white cabbage, red beet and pumpkin, variability of biochemical compounds.

Burenin V. I., Piskunova T. M. ADAPTIVE POTENTIAL OF THE GENUS *BETA* L. Proceedings on applied botany, genetics and breeding. Vol. 175. I. 2. 2014. pp. 20–32.

Polymorphism of representatives of the genus *Beta* L. is considered, including wild species with valuable traits for breeding. The results of the evaluation of beet varieties for disease resistance are presented. Cold tolerance of the accessions has been analyzed and its connections with bolting resistance as well as with the area of distribution have been shown. The promising future of the use of heterosis is discussed. Recommendations are given concerning source material for breeding.

Key words: species, variety, accession, disease resistance, cold tolerance, bolting resistance, area of distribution.

Burenin V. I., Khmelinskaya T. V. CARROT GENE POOL AND BREEDING. Proceedings on applied botany, genetics and breeding. Vol. 175. I. 2. 2014. pp. 33–41.

The article presents the results of studying the carrot collection. The present-day problems of carrot breeding and seed production are described. Source material is recommended for the most crucial breeding trends.

Key words: gene pool, accession, variety, hybrid, breeding, seed production.

Burlyaeva M. O., Rostova N. S. VARIABILITY AND DETERMINACY OF MORPHOLOGICAL, PHENOLOGICAL, BIOCHEMICAL AND AGRONOMIC CHARACTERISTICS IN FORAGE SOYBEANS OF VARIOUS USES UNDER THE CONDITIONS OF KRASNODAR REGION.

Proceedings on applied botany, genetics and breeding. Vol. 175. I. 2. 2014. pp.42–52.

The paper presents the results of the research on variability and correlation of 92 morphological, phenological, biochemical and agronomic characters in 270 soybean accessions of various uses (green fodder, hay, silage). The range of variation and the degree of correlation (determinacy- R^2) of the studied traits have been found to change significantly under different weather conditions. The degree and direction of such changes are determined by growth conditions and specific response of accessions depending on the purpose for which they are used (green fodder, hay, silage).

Key words: soybeans, variability, determinacy, correlation.

Yushev A. A., Orlova S. Yu. PARALLELISM OF CHARACTERS IN STONE FRUIT PLANT SPECIES OF THE *PRUNOIDEAE* FOCKE SUBFAMILY. Proceedings on applied botany, genetics and breeding.

Vol. 175. I. 2. 2014. pp. 53–60.

Stone fruit plants demonstrate remarkable parallelism of their morphological characters. The described characters of specific taxa witness to the regular nature of such parallelism in all genera of the *Prunoideae* Focke subfamily.

Key words: stone fruit plants, genera: *Amygdalus*, *Armeniaca*, *Cerasus*, *Louiseania*, *Microcerasus*, *Padus*, *Persica*, *Prunus*, polymorphism of species.

Kozlov V. A., Rogozina E. V. INTERSPECIFIC POTATO HYBRID CLONES DEVELOPED AT VIR AS SOURCES OF VALUABLE TRAITS FOR POTATO BREEDING IN BELARUS. Proceedings on applied botany, genetics and breeding. Vol. 175. I. 2. 2014. pp. 61–72.

Interspecific potato hybrid clones developed at the Vavilov Institute of Plant Industry (VIR), Russia, were studied in trials performed in the Republic of Belarus. Hybrid clones were assessed for the characteristics important for modern potato breeding: yield, starch content, late blight resistance, and suitability for commercial processing into potato chips. Identified among the interspecific hybrids were the clones surpassing the Belarusian reference cultivars in the content of starch in tubers, resistance to late blight, and the quality of potato chips. Clones with combinations of valuable traits were also selected.

Key words: Potato, interspecific hybrid clones, yield, starch content, late blight resistance, potato chips.

Rokhlova E. REPRODUCTIVE POTENTIAL OF *CENTAUREA MONTANA* L., THE SPECIES THAT RUNS WILD IN SOUTH KARELIA. Proceedings on applied botany, genetics and breeding. Vol. 175. I. 2. 2014. pp. 73–80.

The aim of this work was to identify some biological characteristics of *Centaurea montana* L. (mountain cornflower), the species that presently runs wild losing its cultivated status, compare them with those of the indigenous species *Centaurea jacea* L. (brown knapweed), and assess the invasive potential of *C. montana* in the region. With their vegetative reproduction pattern, both species can develop roughly the same number of new shoots per season (about 5). With due regard to seed germination ability, one shoot of *C. montana* can potentially produce 6 new plants from seed. For *C. jacea*, the same parameter is about six times higher: one shoot of this species can generate 35 new plants from seed. By now, the reproductive potential of *C. montana* is not sufficient to place this species under the category of potentially invasive species for the next few years. Therefore, in northern environments this species is attractive for urban or household landscaping and can be recommended for utilization on a wider scale.

Key words: *Centaurea jacea* L., *Centaurea montana* L., seed propagation, seed yield, vegetative propagation, invasive species.

Aliyeva A. J., Aminov N. Kh. A NEW TETRAPLOID SPECIES *TRITICUM ABSCHERONICUM* ALIYEVA ET AMINOV. Proceedings on applied botany, genetics and breeding. Vol. 175. I. 2. 2014. pp. 81–84.

The rank of a species and the name *Triticum abscheronicum* Aliyeva et Aminov are attributed to the unique branched-spike wheat obtained by crossing hexaploid wheat 171ACS ($2n=6x=42$, AABBDD) with the local durum wheat variety Bereketli-95 ($2n=4x=28$, AABB).

Key words: branched-spike wheat, hybridization, speciation, species, rank, first description of a new species, *Triticum abscheronicum* Aliyeva et Aminov.

Chukhina I. G., Kirina A. O., Galzova T. V. WHEAT FROM ALTAI IN VIR'S HERBARIUM [WIR]. Proceedings on applied botany, genetics and breeding. Vol. 175. I. 2. 2014. pp. 85–89.

The paper presents the results of studying the herbarium collection of wheat samples (*Triticum* L.) cultivated in Altai Krai and Altai Republic. All in all, the herbarium of the Vavilov Institute [WIR] holds 473 specimens of 23 varieties belonging to 4 species: *Triticum aestivum* L., *T. durum* Desf., *T. turgidum* L. and *T. polonicum* L. All herbarium materials of the local wheat diversity were collected in Altai in the first half of the 20th century. The authors have identified lectotypes of 2 forms of bread wheat described by K.A. Flyaksberger: *T. aestivum* var. *ferrugineum* f. *rossicum* Flaks. and *T. aestivum* var. *ferrugineum* f. *sibiricum* Flaks.

Key words: herbarium, WIR, wheat, *Triticum*, Altai, typification, lectotypes.