

РЕЗЮМЕТА

НА НАУЧНИТЕ ПУБЛИКАЦИИ НА Гл. ас. д-р СТАНИСЛАВА ЙОРДАНОВА
ГРОЗЕВА-ТИЛЕВА

Engineering of the membrane of fibroblast cells with virus-specific antibodies: A novel biosensor tool for virus detection

Moschopoulou G., K. Vitsa, F. Bem, N. Vassilakos, A. Perdikaris, P. Blouhos, C. Yialouris, D. Frosyniotis, I. Anthopoulos, O. Mangana, K. Nomikou, V. Rodeva, D. Kostova, **S. Grozeva**, A. Michaelides, A. Simonian, S. Kintzios

Biosensors and Bioelectronics, 24(4): 1033-1036, 2008. **IF 5,143**

ABSTRACT

A novel concept for the assay of viral antigens is described. The methodological approach is based on a membrane-engineering process involving the electroinsertion of virus-specific antibodies in the membranes of fibroblast cells. As a representative example, Vero fibroblasts were engineered with antibodies against *Cucumber mosaic virus* (CMV) and used for the construction of an ultra-sensitive miniature cell biosensor system. The attachment of a homologous virus triggered specific changes to the cell membrane potential that were measured by appropriate microelectrodes, according to the principle of the bioelectric recognition assay (BERA). No change in the membrane potential was observed upon cell contact with the heterologous *cucumber green mottle mosaic virus* (CGMMV). Fluorescence microscopy observations showed that attachment of CMV particles to membrane-engineered cells was associated with membrane hyperpolarization and increased $[Ca^{2+}]_{cyt}$. In an additional field-based application, we were able to detect CMV-infected tobacco plants at an essentially 100% level of accuracy.

Anther culture in pepper (*Capsicum annuum* L.) *in vitro*

Irikova T., **S. Grozeva**, V. Rodeva

Acta Physiol. Plant., 33(5): 1559-1570, 2011 **IF 1,639**

ABSTRACT

Pepper (*Capsicum annuum* L.) is an important vegetable crop that can be improved using plant tissue culture and biotechnology. However, it is difficult to develop appropriate breeding material by *in vitro* cultivation in this species. Haploid plant production is useful in the breeding programs to facilitate recovery of recessive mutations and unique genetic

recombinations. In embryogenesis, haploid formation from pollen in anther culture is a scientifically advanced, but controversial system. Various techniques for haploid plant regeneration are used to establish an efficient double haploid production method. The purpose of this article is to summarize, through comparison, results in pepper anther culture, problems associated with work in this field, and the influence of critical factors for successful embryo formation and plantlet development.

***In vitro* response of pepper anther culture (*Capsicum annuum* L.)
depending on genotype, culture medium and duration of cultivation**

Irikova T., S. Grozeva, P. Popov, V. Rodeva

Biotechnol. & Biotechnol. Eq., 25(4): 2604-2609, 2011, **IF 0,760**

ABSTRACT

The *in vitro* response of anther cultures of 19 Bulgarian pepper (*Capsicum annuum* L.) genotypes among which eight lines, seven varieties and four hybrids was examined using two induction media (C and Cm) within two time intervals for cultivation – 12 and 40 days respectively, and two regeneration media (R and Rm). Six lines, six varieties and three hybrids produced direct embryos in the cultivated anthers 35-40 days after inoculation *in vitro*. Regenerated plants were obtained from four lines, six varieties and one hybrid. It was established that 12 days of cultivation on medium C were not sufficient to initiate embryo formation in the tested genotypes while the longer one (40 days) revealed their ability for direct embryogenesis. Considerable percentage of embryos developed into plant-regenerants after being transferred on R medium (50-100%). Higher frequency of embryogenic anthers was recorded after 12 days of culturing on induction medium Cm but after their transfer on Rm medium the embryos did not develop into plantlets. These results suggest that the donor genotypes have specific requirements for nutrient medium and duration of induction cultivation.

**Identification of *BABY BOOM* and *LEAFY COTYLEDON* genes in sweet
pepper (*Capsicum annuum* L.) genome by their partial gene sequences**

Irikova T., S. Grozeva, I. Denev

Plant Growth Regul., 67(2): 191-198, 2012, **IF 1,670**

ABSTRACT

Haploid plant production via anther culture is a valuable tool to rapidly create pure lines for plant breeding programs. Some sweet pepper (*Capsicum annuum* L.) varieties produce

embryogenic anther culture readily, while others do not respond at all. The switching of microspore developmental program from gametophyte- to sporophytetype is regulated by transcription factors like BABY BOOM (BBM) and LEAFY COTYLEDON (LEC). Genes encoding these transcription factors have not been found in sweet pepper yet. The sequences of BBM and LEC from other plants, annotated in National Center for Biotechnology Information (NCBI), were used to design degenerative primers for conservative regions in these genes and to amplify BBM- and LEC-like sequences from genomic DNA of sweet pepper by PCR. The PCR products were cloned and sequenced. Sequence comparison revealed high similarity between the isolated sequences and those annotated in NCBI for BBM and LEC1. The obtained sequences were subjected to bioinformatics analyses to determine the exon–intron structure. Exons were translated in protein products in silico. The protein blast of the pepper BBM in the NCBI database revealed presence of an AP2-type functional domain, which is typical for the BBM family. The pepper LEC sequence was found to carry CBFDFNYB-HMF motif, typical for the LEAFY COTYLEDON gene product family. RT-PCR confirmed high levels of expression of the BBM and LEC genes at the early stages of direct embryos development in anther culture. Expression of the two genes was not detected either in mature pepper plants or in non-embryogenic anthers. The two genes were detected in genomes of 14 pepper varieties, some of which do not respond with formation of direct embryos. We assume that differences in responses between varieties should be attributed not to presence/absence of two genes, but to their interaction with other genes' products and different factor like micro-RNAs involved in the regulation of their expression.

Breeding evaluation of pepper lines obtained by *in vitro* anther culture

Todorova V., S. Grozeva, V. Rodeva, S. Masheva,

Genetika, Serbia, 45(2): 601-610, 2013, **IF 0,492**

ABSTRACT

The comparative breeding evaluation was carried out with six advanced pepper lines (*Capsicum annuum* L.) with androgenic origin and their initial pepper variety Hebar during the period 2008 – 2010 in field conditions at Plovdiv, Bulgaria. The genotypes were characterized by total and standard yield, plant height and fruit traits: length, width, wall thickness and weight. The response of two lines (4 and 6) and control variety to the *Verticillium* wilt was also investigated on artificial infected background. According to the results of the experimental work standard and total yield in all androgenic lines were higher compared to the initial variety but significant differences were established only for lines 1, 2, 4 and 6. Line 6 was characterized with the highest standard yield (4009 kg/da) followed by line 2 (3829 kg/da). They exceeded variety Hebar with 42.26% and 35.89%, respectively. Line 2 formed the heaviest (61.31 g) and longer (11.24 cm) fruits than most studied genotypes. Anther-derived lines were also with a good uniformity by studied traits. In line 6 was registered lower index of infestation by *Verticillium dahliae* Kleb. than the control during the investigated period. These perspective lines will be included as valuable genetic resources for future pepper breeding programs for development of new varieties.

Polyphenolic constituents, antioxidant activity and mineral content of very small and small fruited tomato (*Solanum lycopersicum* L.) genotypes

Grozeva S., A. Atanasova, P. Denev, D. Ganeva, M. Kratchanova, I. Tringovska

Agrochimica, 57(4): 337-347, 2013, **2013, IF 0,314**

ABSTRACT

In the present study seven breeding lines of tomato were analysed for major polyphenolic constituents, antioxidant activity and mineral content. These lines were a result of interspecific hybridization with wild relatives and represented very small (cherry) and small-fruited tomato. In the group of cherry tomatoes the highest amounts of total polyphenols (933.3 mg GAE kg⁻¹ fresh weight (FW)), chlorogenic acid (84.4 mg kg⁻¹ FW) and minerals were detected in line 1620/10. This genotype also had a high concentration of rutin (66.1 mg kg⁻¹ FW), which correlated with the highest antioxidant activity measured by Oxygen Radical Absorbance Capacity (ORAC) and Hydroxyl Radical Antioxidant Capacity (HORAC) methods. In the group of small-type tomatoes, lines 1203/06 and XXIV-a were distinguished by the highest content of polyphenols. The investigated breeding lines, especially 1620/10, 1203/06 and XXIV-a, are potentially useful in tomato breeding programmes for the development of new varieties with improved composition and higher antioxidant activity.

Response of tomato lines (*Solanum lycopersicum* x *Solanum pennellii*) and their parental genotypes toward high temperatures and drought

Petkova V., V. Rodeva, S. Grozeva, E. Topalova

Report of the Tomato Genetic Cooperative, 59: 48-5, 2009

ABSTRACT

Exposure of tomato plants to high temperature and water deficit beyond their biological requirements results in alteration of photosynthetic activity, particularly on PSII efficiency. Although there were differences in the values of the chlorophyll fluorescence parameters in the studied tomato genotypes, the level of tolerance is comparatively high. The highest temperature and drought stress tolerance is established in hybrid lines 1848, 1852 and 1844 – these have potential for breeding purposes.

Successful regeneration of sweet pepper (*Capsicum annuum* L.) in an airlift bioreactor: effect of medium phase and genotype.

Grozeva S., V. Rodeva, S. Kintzios

The Open Horticulture Journal, 2: 70-75, 2009

ABSTRACT

We investigated the regeneration of two Bulgarian sweet pepper cultivars ('Hebar' and 'Stryama') on solid and liquid culture medium. Liquid cultures were incubated in temporary immersion RITA® airlift bioreactors. During a period of 60 days, culture in the liquid medium was associated with significantly increased shoot tip growth, number of lateral shoots, percentage of rooted plants and micropropagation coefficient, with essentially no callus formation. Regenerants from cultivar 'Hebar' exceeded those of cultivar 'Stryama' in all measured traits. A coefficient of micropropagation equal to 5.3 was observed for the superior cultivar. The results of the present study manifest the possible scale up of the micropropagations of this recalcitrant species, resulting in higher number of vigorous plants within a short period of time.

***In vitro* shoot organogenesis in Bulgarian sweet pepper (*Capsicum annuum* L.) varieties**

Grozeva S., V. Rodeva, V. Todorova

Electronic Journal of Biology, 8(3): 39-44, 2012

ABSTRACT

The effect of Humates and silver nitrate on organogenesis of cotyledon and hypocotyl explants of four sweet pepper (*Capsicum annuum* L.) varieties was investigated. The rate of plant regeneration was found to depend on genotype, explant type and culture medium. The cotyledons were more effective as explants for bud induction and subsequent plant elongation than hypocotyls. The highest regeneration frequency (2.35 plants per explant) was achieved in cotyledons from variety Maritsa on culture medium supplemented with 0.2 mgL⁻¹ AgNO₃. The medium containing 5.0 mL⁻¹ Humates promoted plant regeneration in hypocotyls. Differences in morphological characteristics and pollen fertility between seed-derived and in vitro regenerated plants grown in greenhouse conditions were registered.

Development and characterization of Bulgarian determinate processing tomato genotypes with high lycopene content

Danailov Z., V. Rodeva, **S. Grozeva**

ABSTRACT

Determinate tomato mutant lines, developed through callus irradiation with gamma rays (^{60}Co), determinate lines created by conventional breeding methods and F1 hybrids between them were characterized by determining of the fruits index, average weight, dry matter and lycopene content, its inheritance in F1 hybrids, as well as the level of heterosis expression for earliness and total productivity. Manifestation of positive heterosis effect in total productivity with overdominant inheritance in all F1 hybrid combinations studied was established. Intermediate to overdominant inheritance of the f1 hybrid earliness to the earlier parental line was registered developing on the hybrid combination. The results suggest that the inheritance of the lycopene content in the fruits of the studied f1 hybrids is overdominant to the superior or overdominant to the low level content parental genotype. Determinate f1 tomato hybrids for processing favorable combining total productivity, early yield, high lycopene content and fruit quality are differentiated.

***In vitro* reactions in anther culture of sweet pepper (*Capsicum annuum* L.) cultivars and breeding lines of different types**

Irikova T., P. Popov, S. Grozeva, V. Rodeva

Genetics and Breeding, BG, 38(3-4): 15-23, 2009

ABSTRACT

The reactions of different type's sweet pepper in anther culture *in vitro* were studied. A comparison of direct embryo production in anthers isolated from conic-type, pepper, kapiya-type, large-fruited and red pepper from grinding showed the highest frequency of embryogenesis in large-fruited pepper. Comparison of the values of the influence of pepper types onto the direct embryogenesis in anther culture (n %) indicated that it is highest in large-fruited, followed by kapiyaq conic-type and red pepper of grinding. The results obtaining showed that large-fruited pepper have potential of as a reliable donor plant to develop an effective anther culture producing direct embryos which gives rise to plant regeneration.

Obtaining of pepper plants via anther culture

Grozeva S., V. Rodeva, V. Todorova, R. Pundeva

Genetics and Breeding, BG, 38(3-4): 25-31, 2009

ABSTRACT

The embryogenic response of 22 lines, cultivars and F₁ hybrids of pepper (*Capsicum annuum* L.) to *in vitro* anther culture was evaluated in the present study. Significant differences in the microspore reaction are established among the studied genotypes. The highest percentage of embryo development was observed in cultivated anthers from cultivar Stryama. The ploidy levels of plant-regenerants are determined by flow cytometry and cytological analysis. Experimental results indicated plants with haploid and diploid chromosome number. Haploid plants were completely sterile with narrow leaves, shorter internodes and reduced vigor, while diploid plants were fertile with normal fruits and uniform progenies.

Comparative study of resistance in cucumber and melon lines to the pathogens causing powdery mildew and downy mildew *in vitro* and *in vivo*

Velkov N., S. Grozeva, V. Rodeva

Genetics and Breeding, BG, 39(1-2): 187-195, 2010

ABSTRACT

The effect of different phytohormone concentrations on callusogenesis and organogenesis in two cucumber genotypes were studied. It was found that the rate of plant regeneration depends on genotype, explant type and culture medium. Hypocotyls were found to be more responsive than cotyledons in morphogenesis. *In vitro* plant-regenerants have been obtained in hypocotyls explants on culture medium with 1.0 and 2.0 mgL⁻¹ BA for cultivar Gergana and in 1.0 and 3.0 mgL⁻¹ K – line 15B. Induction of regeneration in cotyledons were established only in cultivar Gergana on culture medium supplemented with 3.0 mgL⁻¹ BA and in combination of 0.5 mgL⁻¹ IAA.

Induction of somaclonal variation and *in vitro* mutation in tomato

Grozeva S., V. Rodeva,

Ecology and Future, 4: 26-29, 2012

ABSTRACT

Cotyledon and hypocotil explants from four tomato lines (XXIVA, 1292, 1294 and 355) were irradiated with dose of 30 Gy γ -rays ⁶⁰Co. Statistical significant differences in regeneration frequency depending on the genotype and explant types were established. Plants with changed characteristics were obtained in both non-irradiated callus tissue and after treatment with mutagen. With respect to the mutant spectrum no clear differences were observed between the spectra obtained after γ -rays ⁶⁰Co treatment and those after tissue culture. However, significantly higher was the number of changes in morphological traits and pollen sterility in plants obtained after mutagenic treatment (76.0% and 8.0% respectively) compare to these regenerated from callus (10.0% and 0.1% respectively).

Obtaining of plant-regenerants in head cabbage (*Brassica oleraceae* var. *capitata*) anther culture

Grozeva S., V. Rodeva, G. Antonova

Ecology and Future, 4: 36-40, 2012

ABSTRACT

As a result of *in vitro* cultivation of anther from twelve head cabbage genotypes 42 plants were regenerated. Differences were found in embryogenic ability among tested genotypes depending on induction medium and duration of vegetation period. The highest percentage of embryo development was observed in cultivated anthers from line 26 in medium variant 1, but the number of plant-regenerants was higher in variety P. Podobreno in medium variant 2. The highest percentage of reacted anthers was established in genotypes for early field production with autumn planting and the higher percentage of regenerants was registered in group for late field production.

The differences in pollen fertility between androgenic plants were proved. Abnormalities were observed in sterile forms concerning homologous conjugation probably due to gathering changes. Although the established high pollen fertility in the most of *in vitro* obtained plants after self-pollination seeds were produced only from 10 plants selected for subsequent investigations.

Съдържание на полифеноли и антиоксидантна активност на домати, отглеждани при оранжерийни и полски условия

Атанасова А., И. Тринговска, П. Денев, Д. Ганева, С. Грозева, М. Крачанова
Международно научно on-line списание Наука и технологии, 3(6): 81-85, 2012

ABSTRACT

The purpose of this study was to determine the content of total polyphenols, rutin, chlorogenic acid and antioxidant activity in fruits of tomato, grown under greenhouse and field conditions. Experimental work was carried out in 2012 with two tomato varieties, Alya and Plovdivska karotina, created at Maritsa VCRI, Plovdiv. The amount of total polyphenols was 20-46% higher in field grown tomatoes than the same varieties, grown in greenhouse conditions. A similar tendency was observed in the content of rutin and antioxidant activity measured by the *Oxygen Radical Absorbance Capacity* (ORAC) and *Hydroxyl Radical Averting Capacity* (HORAC). Therefore, it can be concluded that tomatoes, grown under field conditions have higher content of polyphenols and greater antioxidant activity, in comparison with the same

varieties, grown in greenhouse. This proves that the growing conditions are one of the main factors determining the content of biologically active substances in fruits

Антиоксидантна активност и полифенолен състав на български сортове домати

Атанасова А., П. Денев, И. Тринговска, С. Грозева, Д. Ганева

Наука Диететика, 3: 24-27, 2013

РЕЗЮМЕ

Изследването е проведено с четири сорта домати, предназначени за свежа консумация, отличаващи се по маса и цвят на плода. Сортове „Идеал”, „Наслада” и „Розалина роса” се отнасят към групата на едрите домати с маса на плода от 101 до 200 g, докато сорт „Розов блян” е много едър с маса на плода над 200 g. Най-високо съдържание на общи полифеноли (61,34 mg/100 g) и рутин (3,20 mg/100 g) е установено в плодовете на сорт „Идеал”. Този сорт се отличава и с най-висока антиоксидантна активност измерена и по двата метода (9,7 $\mu\text{mol TE/g}$ zo ORAC и 5,14 $\mu\text{mol GAE/g}$ за HORAC). Установена е добра корелация между съдържанието на полифеноли и антиоксидантната активност на изследваните плодове ($R^2=0.966$ за ORAC и $R^2=0.887$ за HORAC) .Направеното проучване показва, че сорт „Идеал” може да бъде отличен като богат на полифенолни антиоксиданти и присъствието му в ежедневната диета може да има благоприятен ефект при превенция на заболявания, свързани с оксидативен стрес.

Effect of ^{60}Co irradiation dose and growth conditions on cabbage seed development (*Brassica oleraceae* var. *Capitata*)

Rodeva V., S. Grozeva

International scientific conference “Plant genetic stocks – the basis of agriculture of today”, Sadovo, 13-14 June, Vol. 1, pp. 307-310, 2008

ABSTRACT

Seeds from eight cabbage (*Brassica oleraceae* var. *capitata*) genotypes (cultivars ‘Pazardzhishko podobreno’, ‘Pazardzhishko cherveno’, ‘Kjose’, ‘Balkan’, ‘Besapara’, ‘Ditmarsko’, lines 9-9-2 and 9-3) were irradiated with doses 800, 1000 and 1200 Gy γ -rays ^{60}Co . Half of the treated seeds were germinated in vitro and the other half – in vivo. In spite of the genotype and applied dose all of the produced seedlings grown in vivo died before the expansion of the first leaf. The same tendency was observed in germination of the irradiated

seeds *in vitro*, but depending on dose different percentage survived and developed to whole plants. In the case of late tissue degeneration green segments of stems were cultivated for plant regeneration. In result of the experiment it was proved that the processes of seed germination and development treated with γ -rays ^{60}Co are influenced not only of the genotype and irradiation dose but also from the growth conditions.

Micropropagation of sweet pepper (*Capsicum annuum* L.) on solid and liquid media

Rodeva V., S. Grozeva, S. Kintzios

Acta Horticulturae 830: 291-295, 2009

ABSTRACT

Experiments for determining the optimized conditions for the micropropagation of four Bulgarian pepper cultivars are realized. The combination of 1/2 MS0 culture medium with Ascorbic acid, Vitamin B₁₂ and a low concentration of Humic acid (5ml/l) stimulated growth and development of pepper micropropagated plants *in vitro*. Coefficient of propagation in shoot-tip explants was from 2,0 to 3,0 for a period of 60 days on solid medium although differences in the response of the investigated cultivars were established. This coefficient of mass propagation was comparatively higher – from 4,0 to 5,3 – in the conditions of RITA[®] temporary immersion system of air-lift bioreactors in liquid medium containing the same supplements because of better development in the height of explants, additional lateral bud growth and better root formation. This probably is due to the close contact of the tissue with the medium which stimulated and facilitated the uptake of nutrients.

In result of the optimized conditions in the air-lift bioreactors microplants were very vigorous and well developed with broad leaves, stronger roots and stems.

Characterization of tomato forms obtained after seed treating with imagine diagnostic elements

Grozeva S., V. Rodeva, G. Pevicharova

International conference – Research people and actual tasks on multidisciplinary sciences, 10 – 12 June, Lozenec, Bulgaria, Vol. 1, pp. 72-76 2009

ABSTRACT

Seeds from tomato genotypes (line 120 and variety Commodore GSR 748) were treated with two different concentrations of imaging diagnostic elements Gadolinium (Gd³⁺), Technecium (Tc-99m) and Tetramethylammonium chloride (TMA) and germinated *in vitro*. In M₁

generation the changes were observed in pollen fertility, parthenocarpic fruits formation, fruit size and total pigments content. There were established differences in percentage of plants with changed characteristics depending on the genotype and the applied chemical mutagen. As a result of the experiments in the next generations (M₂ – M₄) two lines from 120 with higher productivity, size and better biological values of fruits were selected.

Plant regeneration after head cabbage (*Brassica oleraceae* var. *capitata*) seed treatment by γ -rays ⁶⁰Co

Grozeva S., V. Rodeva, G. Antonova

45th Croatian & 5th International Symposium on Agriculture, 15-19 February, Opatija, pp. 419-422, 2010

ABSTRACT

The aim of present investigation is characterization of changed head cabbage forms obtained after seed irradiation with 800 Gy γ -rays ⁶⁰Co and *in vitro* regeneration. There were registered the highest frequency of changes in pollen fertility (83,3% of plants) followed by plant height (66,7% of plants) of M₁ generation in generative stage of development. The changes in some characteristics of flower and leaf morphology were observed also. We suppose that except applied physical mutagen *in vitro* cultivation of treated explants also effect the establishment of genetic diversity in this case.

The obtained sterile and low pollen fertility head cabbage lines are of breeding interest for F1 hybrids creation.

Micropropagation of pepper (*Capsicum annuum* L.) in liquid medium

Grozeva S., V. Rodeva

International conference – Research people and actual tasks on multidisciplinary sciences, 08 – 10 June, Lozenec, Bulgaria, Vol. 1, pp. 80-84, 2011

ABSTRACT

The effect of RITA[®] temporary immersion system of air-lift bioreactors was studied to optimize the conditions for micropropagation of four Bulgarian pepper cultivars. Coefficient of mass propagation in shoot-tip explants was from 3,6 to 6,1 for a period of 60 days on liquid medium in air-lift bioreactors compare to solid medium in glass vessels – from 2,2 to 3,8. Significant differences in the value of the propagation coefficient depending on the immersion frequency – 5 and 15 min with 10 min intervals were not established. Increased shoot-tip growth, formation of stronger leaves and roots was the result of liquid medium culturing,

what likely due to a direct contact of the medium consisting with plant tissues.

Effect of temperature and growth period of donor plants on pepper anther culture

Grozeva S., V. Todorova, T. Cholakov, V. Rodeva

International conference – Research people and actual tasks on multidisciplinary sciences, 12 – 16 June, Lozenec, Bulgaria, Vol. 1, pp. 60-64, 2013

ABSTRACT

The influence of temperature and growth period of donor plants on anther culture in nine pepper hybrids and varieties was studied. Frequency of embryo formation and plant regeneration varied with genotype and period of culture initiation. The most effective androgenic answer was registered in September when the optimal temperature for embryo induction was between 17.5-22.2°C. In these conditions the formed embryos were 52.9% of the total cultivated anthers and the obtained plant-regenerants – 50.6%. The experimental results indicate that combination of factors as culture media, donor plant age and growing air temperature can improve androgenic answer in different pepper genotypes. Slightly variation of daily temperature also is a factor improving microspore embryogenesis in anther culture.

Characterization of quality and productivity traits of new tomato genotypes with high biological value

Grozeva S., D. Ganeva, G. Pevicharova, B. Bojinov, Zh. Danailov

49th Croatian & 9th International Symposium on Agriculture, 16-20 February, Dubrovnik, pp. 239-243, 2014

ABSTRACT

The aim of this work was morphological and phenotypic evaluation of new tomato genotypes. Eight tomato genotypes were characterized by plant habit, fruit colour, shape, weight, firmness and dry matter, number of fruits per plant, plant weight, biomass, harvest index and yield. Sensory analysis was conducted also. For most traits, a wide range of genetic variability was found. The established contrasting differences between studied genotypes by main plant and fruit traits are a good base for breeding program aimed to determine the nature of inheritance and identify of donors of valuable characters.

Assessment of tomato mutant forms and their initial lines by cluster and factor analysis

Ivanova I., S. Grozeva, V. Rodeva

Jubilee scientific conference with international participation “Traditions and challenges of agricultural education, science and business”, 14-17 October, Plovdiv, pp. 353-358, 2010

ABSTRACT

There were estimated 7 newly obtained in vitro tomato lines and 4 initial parental forms by 10 determining morphological and biochemical indices aimed to ascertaining of genetic differences between the both groups of genotypes.

On the basis of performed cluster analysis they were classified in 3 clusters with different genetic distances.

In addition factor analysis was made to establish the indices with the highest influence on distribution of the genotypes in the received clusters.

Характеризиране на детерминантни F₁ хибриди домати за средноранно полско производство

Грозева С., В. Родева

IX Национална научно-техническа конференция с международно участие „Екология и здраве”, 115-120, 2012

ABSTRACT

The plant productivity, average fruit weight and number of fruit per plant in six F₁ determinate, mid-early tomato hybrids and parental genotypes were studied. The type of inheritance and variation of yield components were determined. The average fruit weight was inherited intermediate with incomplete dominance, while the fruit number per plant was inherited dominance in 66,7% of hybrids and over dominance in 33,3% of them. Heterosis for the plant productivity was established in three of hybrids. Experimental results proved that perspective hybrid combinations by complex of characteristics are Milyana x 826 and Milyana x 748.