

Response of *Hedera helix* (English Ivy) to various salinity levels

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Abstract The presence of salts in soil, underground water and as well as surface water sources is main cause of salinity that exacts economic and environmental issues like: reduction in agriculture land, productivity, decline in quality water, limiting plant species and destruction of ecosystems. In this study, the growth response of English ivy (*Hedera helix*) to various salinity levels was assessed. English ivy plants were grown in pots. The plants were treated with salinity stress (4dS/m, 7dS/m, 10dS/m, and 13dS/m) with a control treatment (2.5 dS/m). These salinity levels were maintained by the addition of weighed amount of salt into the soil. shoot fresh and dry weight, root fresh and dry weight, root-shoot fresh weight ratio, root-shoot dry weight ratio, root length, shoot length, plant quality, leaf area, number of leaves significantly decreased as salinity increased while mortality percentage, percentage leaf firing and Na⁺ and Cl⁻ concentration in leaves significantly increased with more salinity. On the basis of overall study it reveals that *H. helix* gave better results in salinity level of 2.5dS/m but the overall growth decreased at the salinity level of 13dS/m.

Key words

Ground cover, NaCl, Saline soils, English ivy, morphological characteristics

Evaluation of morphological diversity and essential oil yield of *Satureja mutica* Fisch. & C. A. Mey. populations growing wild in Iran

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Abstract To evaluate both among and within populations morphological variation and difference in essential oil content of *Satureja mutica* Fisch. & C.A. Mey. an experiment was undertaken on 60 individual plants collected from seven populations grown in the northeast and northern regions of Iran. In this study, 40 quantitative and qualitative traits were assayed. Analysis of variance showed significant differences for almost all quantitative characters studied. PCA analysis showed that the first five components explained more than 55.0% of the total variance that embraced different morphological characters such as verticillasters length, corolla length, length and width of

Key words

Satureja mutica, Lamiaceae, morphological variation, PCA, cluster analysis, essential oil

the upper lip corolla, calyx length, length and width of bract and width of bracteole. Cluster analysis divided 60 individual plants into three groups which was in agreement with geographical origin of the populations. correlation coefficients showed that plant height, leaf length and inflorescence length are positively correlated with the oil content. The oil content varied from 0.17 and 5.0% among different populations, and the highest oil content was obtained in Keshanak and Darkesh, with driest climate.

Researches regarding the maintaining of the quality of the roses depending on storage temperature

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Abstract The purpose of this work was to study the influence of different temperatures associated with different periods of preservation on the life duration and the quality of the roses. This paper presents the result obtained in preserving of the roses of Flamingo and Mister Lincoln cultivars in water at different temperature. The roses were harvested in the stage of closed buds and their preservation was made in water, at temperatures between +1°C and +10°C for a period of 3 and 6 days respectively. The paper also illustrates the flowers' behaviour during storage of these roses in water in a jars at temperature of 20°C, as compared to the behaviour of the roses kept only of 20°C. For the experiments we used roses flowers harvested in March and November, two consecutive years . The presented results represent an average of the four experimental phases. The life duration of the roses kept at ambient temperature diminishes as the temperature and the preserving period increase. The optimum temperature for roses preservation is found to be of +1°C, and the maximum period of the preservation at this temperature is of three days. The life duration of the roses was greater in the case of Mister Lincoln cultivar by two days, as compared to Flamingo cultivar, in the same conditions of preservation.

Key words

diameter of the flower, duration of the storage, intensity of the respiration process

Heliconias - Novelties and applicability in floral art

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Abstract Heliconias are tropical plants related to bananas, cannas and gingers. They are perennial herbaceous with bright red floral bracts and inconspicuous white flowers. Heliconia is quite popular as an ornamental and cut flower for bouquets and arrangements, both for the home and for commercial sale. Heliconias have become increasingly popular as decorative flowers, especially in those regions where they cannot be grown in the garden. Heliconia are grown for their beautiful, brilliant colorful flowering bracts. In Hawaii it is very popular and when you visit a Buddhist temple, a library, or a resort, an arrangement with heliconias is bound to

Key words

diversification assortment, floral plant, exotic species, floristic art

greet you. Characteristic flat bracts of this heliconia make them good for floral arrangements. Researching activity for diversification of floral plants assortment by introducing of the most competitive tropical floral cultivars is one of the objectives of our experiments. Heliconia flower compositions can be used alone or in combination with other exotic species, delicate and elegant (*Anthurium*, *Cymbidium*, *Protea*, *Trachelium*, *Zantheschia*, *Zingiber* etc.) or are an excellent choice for container plants that can be grown indoors for the winter and moved outdoors for the spring and summer.

Researches concerning the diversification of *Callistephus chinensis* assortment at the floral collection of UASMV Cluj-Napoca

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Abstract Asters are one of the most popular species for cut flower, being among the most popular garden flowers. Cut flowers have a long storage in water and are found in a rich range of shapes and colors. The researches were aimed to enrich to didactical collection with 15 new varieties of *Callistephus chinensis* received from the SATIMEX Company - Germany and to study their behavior on a period of vegetative in Transylvania - Romania conditions. The varieties belong to four series: 'Lady Coral' (3 varieties), 'Harlekin' (4 varieties), 'Sea Starlet' (5 varieties), and 'Rose of Shanghai' (3 varieties). Observations and determinations were made on the main morpho-decorative characters such as: colors, high plants, circumference of plant, number of flower/inflorescence, diameter of flower, diameter of receptacle, number of branched stem per plant, number of ligules. All data obtained were interpreted statistically by calculating the average and the significance of differences was tested (LSD test). The most representative *C. chinensis* varieties can be used for landscape design or as cut flowers in vase or different summer arrangements.

Key words aster, cut flower, new cultivars, characteristics

***Pinus cembra* L. leading shoots and needles variation from Romanian natural stand samples**

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Abstract The swiss stone pine initially covered a larger area in the sub-alpine and alpine regions, but because it was located right next to mountain pastures, the specie was decimated by the anthropogenic activities. Unfortunately, the swiss stone pine was not taken into consideration within

Key words

Șureanu Mountai, UP IV Canciu, crown layer,

the afforestation works at high altitudes, where it could have played an important role together with other species, such as the altitude spruce, junipers, green alder, mountain ash and willow, against soil erosion, downstream flooding and avalanches prevention. The materials were collected from trees belonging to natural populations of *Pinus cembra*, trees belonging to comparative cultures of swiss stone pine located in the Şureanu Mountain area, Cugir forest department UP IV Canciu, u.a. 65 B. The differences were statistically analyzed using the test of multiple comparisons (Duncan test). The highest value of leading shoots length from crown layer was registered in Pietrosu Rodnei population; as compared to this one, Gemenele population is very significantly different. In order to conclude the research mentioned, one can say that the length of leading shoots from the upper third of the crown layer do not differ statistically between the two populations, still the length of leading shoots from the middle and lower third of the crown layer present very significant differences. homogeneity

***Pinus cembra* L. cones and seeds variation from Romanian natural stand samples**

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Abstract The number of cones per tree with based diameter between 40 and 60 cm varies between 100 and 150 seeds, the maximum is 611 cones for a tree with 43 cm diameter at 1.3 m height. The 100 seeds weight range from 150 to 300 g with an average of 270 g; per 1 kilogram being between 4,000 and 5,000 seeds. For this study the materials were collected from trees belonging to natural populations of *Pinus cembra*, trees belonging to comparative cultures of Swiss stone pine from: Pietrosu Rodnei, Lala, Călimani, Boteanu, Iezerul Mare, Gemenele and Pietrele. The differences were statistically analyzed using Duncan test. Pietrosu Rodnei population presents an average of each character studied, lower than the populations from Retezat. Within the populations, the cones sizes present a small and very small variability. The sizes of the cones are characters which are strongly influenced by environment conditions and in a strong connection to the number of seeds per cone. Therefore, the pollination success largely determines the number of fertilized ovules, number of seeds per cone and cone sizes.

Key words

cone distribution, cone length, cone diameter, seed weight

Correlations between the soluble dry matter and the content of vitamin C in the carrot roots

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Abstract The dry matter content and the main vitamins determine the energetic and alimentary value of carrots roots pursued in the experience depending on applied technology on carrots culture. During the two years of experience, the values of vitamin C content in carrot roots ranged between 8.51 and 11.91 mg/100g, close to those of specialized literature. The relationship between the vitamin C content and the soluble dry matter was highlighted by simple positive correlations for the two varieties analyzed, both at the organic fertilization and the chemical. Quantitative evolution of vitamin C content depending on the amount of soluble dry matter of carrot roots, was determined by linear regression equations for the two varieties studied (Nantes-5 și Flakker-3) at both sowing dates.

Key words

cultivar, carrot root, vitamins, ascorbic acid

The influence of climatic conditions on the yield and quality of potato varieties cultivated on sandy soils

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Abstract Climatic conditions during the vegetation period of potato strong disrupt the processes of growth and development of the tubers, which are reflected in production levels.

The best results were recorded varieties Evolution, Carera, Astral which recorded production of 48.9 t / ha, 47.8 t / ha, 44.1 t / ha, drawing good climatic conditions in the steppe south.

The most sensitive varieties to influence climate conditions Robusta and Artemis varieties with an average production of 30.6 t / ha.

Key words

variety, sandy soils, production, quality

The influence of the shape crown and of variety on the quince phenological indicators in Oltenia's hilly area

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Abstract Basin fruit-growing Tg.-Jiu is known for its favorable climatic conditions and quality quince fruit culture is obtained in this area. Quince range is generally provided insufficient varieties to ensure the requirements of a modern fruit growing, especially in terms of tolerance to major diseases of trees habitus, size, shape and quality of the fruit..

Key words

quince, crown shape, variety, fruit

The Moldovenesti variety cultured in a *late flat bowl* shape crown system, represents the assurance of over 24 t/ha productions and flat fruit with an average weight of 350 gr./fruit.

The De Portugalia variety with seems to be not suitable for the hilly area, this is why it is not recommended in cultures.

“Late bowl” and “Shapeless Hedge” crown shaped were found to be the most suitable for the establishment of a quince plantation, both in the intensive and the super-intensive system, the production increases being of up to 16% compared to other types of crown.

Researches regarding determining of sources of carbohydrates and vitamin C in the horticultural products on sandy soils

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Abstract Fruits and vegetables are a great source of carbohydrates and vitamins that your body needs.

Key words

To identify sources rich in carbohydrates and vitamin C grown on sandy soils were studied various horticultural species: peppers, tomatoes, melons, potatoes, sweet potatoes, apricots and peaches. In these species were identified varieties with the highest content of carbohydrates and C vitamin.

carbohydrates , C vitamin, peppers, tomatoes, sweet potatoes, apricots, peaches, sandy soils

At the peppers, cultivars Ducu, Bogdan and Ișalnița have accumulated amounts over 100 mg of C vitamin and the tomato cultivars Pontic, Viorica, Buzău, Ghitlia and Darsilius have accumulated amount of C vitamin greater than 20 mg.

In potato tubers and sweet potato was determined amount of vitamin C averaged 17,73 mg and 12,32 mg, and the watermelons, apricots and peaches are varieties that can accumulate significant amounts of C vitamin .

Simple soluble carbohydrates accumulate in a higher percentage in fruits of apricot, peaches, watermelons species compared with peppers, tomatoes and potatoes.

Potatoes and sweet potatoes are rich sources of complex carbohydrates accumulate appreciable quantities of starch, but potato sweet potato is higher

than usual because these complex carbohydrates are absorbed slowly into the bloodstream and thus do not increase blood sugar quickly. The slow decomposition of complex carbohydrates sweet potatoes for food diabetics recommends

A method to improve the sprinkler irrigation uniformity in forest nurseries

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Abstract The research was carried out in the Iarac forestry nursery in the Iuliu Moldovan Forest District during 2011-2013, on an alluvial soil (the vertical-gleyed subtype). The placement of the sample plots was carried out according to the parcel in two repetitions, and the surface of a parcel was 450 m².

The present paper displays the results obtained after the sprinkler irrigation, when we determined the quantity of water spread by the 6 sprinklers on a 15m-radius, placed on the direction of the cardinal points.

The purpose of the research was to observe the correlation between the qualitative work indexes of the sprinkling devices, by spreading a uniform quantity of water on the entire surface and the maintenance of an ecological balance of cultivation of the saplings in the forestry nursery.

In a close connection with the purpose stated, the paper also focuses on the study of the work indexes of the sprinklers used in forestry nurseries, among which the most important is the uniformity of sprinkling.

The main means used for the improvement of sprinkling uniformity are the following: the usage of sprinklers with a small radius of sprinkling, having correct pluviometric curves; the correct placement of sprinklers on the terrain, according to the schemes of work recommended; avoiding to water when the speed of the wind surpasses the speed limit established for the sprinklers used.

Another major source of non-uniformity of the watering through sprinkling is represented by the influence of the wind. The wind deforms the circular form of the surface sprinkled, which becomes a more or less normal ellipsis and a more or less flattened ellipsis, according to the uniformity and intensity of the wind.

Key words

sprinkler, sprinkler irrigation, uniformity of sprinkling, qualitative indexes of the sprinkling

Nemoral habitats from Geopark Plateau Mehedinți (România)

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Abstract This paper presents four nemoral natural habitats from Geopark Plateau Mehedinți: 9110 *Luzulo-Fagetum* beech forests, 9150 Medio-European limestone beech forests of the *Cephalantherion-Fagion*, 91K0 Illyrian *Fagus sylvatica* forests (*Aremonio-Fagion*) and 91L0 Illyrian oakhornbeam forest (*Erytronio-Carpinion*). The research was conducted with the occasion of monitoring of species and habitats from Geopark Mehedinți Plateau, the purpose of improving management to achieve the biodiversity conservation objectives. The presentation used as a diagnostic elements: code and name Natura 2000, correspondence with romanian habitats, EMERALD, CORINE, PALAEARCTIC HABITATS, and EUNIS classification, general description, stationary particularities, variability and distribution in the territory, phytosociologic correspondence, physiognomy and structure, contact habitats, ecological and biological value. It also presents the habitat status, the disturbing factors, the potential threats and the management.

Key words

nemoral habitats,
Mehedinți, Oltenia,
România

Alien and potentially invasive plants from Geopark Plateau Mehedinți

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Abstract It presents the situation of alien plants from Geopark Plateau Mehedinți, România. It is considered that Geopark Plateau Mehedinți is one of the least polluted parks from the country. There have been identified so far 77 taxa of aliens plants category. Most of them are of North American origin, herbaceous, annual or biannual. Of these only 11 are already naturalized, and the rest are casual. 8 species could become invasive in the future, and with most choronyms in Geopark as: *Erigeron annuus* (56 choronyms). We believe that the main causes for this Geopark is less polluted by alien plants would be the geographic location, less intense circulation, lack (until recently) the modernized roads, the total lack of railroads. For comparison we analyzed and the situation of alien plants from protected area of the Iron Gates Natural Park, with the finding that there were identified 116 species [20, 26].

Key words

alien plants, România,
Mehedinți Plateau, invasive
and potentially invasive
plant species

Studies concerning the development of viticulture on Arad, Timis and Caras-Severin areas

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Abstract The aim of the study was the monitoring of viticulture areas development and grapes production, produced in the wine-growing of Arad, Timis and Caras-Severin territory in 2008-2012, these areas being recognized for viticultural potential and vine growing tradition. Data interpretation took into account the context of socio-economic circumstances and current wine policy. European funding accessed through restructuring/reconversion programs implemented in Romanian viticulture, contributed to the recovery of the wine sector in this side area of the country.

Key words

wine, vineyards, area, production

Research concerning the quality of some grapes wine varieties grown in backyards vineyards

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Abstract Research was carried out in several backyards vineyards in the Arad County, over the years 2012 and 2013. Production quantity and quality was studied for varieties: Riesling italian, Fetească regală, Mustoasă de Măderat, Muscat Ottonel, Fetească neagră, Merlot, Burgund, Cadarcă, for two types of pruning: Cazenave's cordon system and vertical cordon with alternating fruit-bearing units (nodes). Studies have revealed that in the columnar vines (vertical cordon) with alternating fruit-bearing units, grapes accumulate less sugar due to high load bearing left to pruning. To obtain high-quality wines, grape quality is very important. Amateur's growers trying in backyard vineyards to use as efficiently as possible the edibles and ornamentals vine traits.

Key words

grapes varieties, types of pruning, backyard vineyard

Considerations regarding the afforestation fields

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Abstract Afforestation action is old, dating from the second half of the nineteenth century and knows a real tradition in our country. It is, however, the categories of land not subject to the theme, the meaning assigned to the term “degraded land” commonly known as the “soil erosion process and

Key words

afforestation, degradation, floods, hydro- ameliorative

washing by water or wind, including sliding due over moisture” and only works, erosion incidentally because disrupting physicochemical processes, products pedohidric deviant regime, as is the case in Western. In the following, we will refer mainly to the way it was seen and solved the problem of degraded land in our country for the purposes of ordinary common word.

Planning research on hydrographic basin Cerna

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Abstract Torrential corrections in hydrographical basin are needed because of the beneficial effects they can produce. One of them is that if they are needed storage dams some torrential correction, namely the construction of dams breaking pressure and to stop silt brought by rivers that reach the bottom of the dam and its yield would decrease dramatically. We did some calculations which show that the most profitable are those torrential correction works only if it is clean these dams silt bottom.

Key words

torrential correction, hydrographical basin, morphometric and hydrological calculations

Optimization of DNA isolation from four species of *Rhododendron* from Europe

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Abstract DNA isolation is a procedure used to obtain genetic material from different organisms in order to use it in subsequent molecular analysis. The quantity and quality of the material are very important as the result from the next steps depend on it, respectively the widely used techniques of molecular biology such as RAPD, RFLP, AFLP, sequencing and others. The work shows the results obtained in isolating DNA from leaves with different extraction kits from four European species of *Rhododendron*, *Rhododendron luteum*, *Rhododendron ferrugineum*, *Rhododendron myrtifolium* and *Rhododendron hirsutum*. All the extraction protocols followed have three main stages: the destruction of the cellular integrity and the release of DNA in a homogenate called cell lysate, the purification of DNA from RNA, protein and other metabolic products, obtaining DNA in the desired concentration and known purity. The experiment used 3 DNA extraction kits aiming at both quantity and quality of the DNA, as well as the cost and complexity related to each kit.

Key words

rhododendron, isolate DNA Kits, protocols, DNA concentration

***Rhododendron ferrugineum* L. and *Rhododendron myrtifolium* Schott & Kotschy in habitats from Eastern Alps mountains and Carpathian Mountains**

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Abstract This paper presents results of research carried on two species of *Rhododendron* in habitats from different regions of Central and Eastern Europe (*Rhododendron ferrugineum* and *Rhododendron myrtifolium*). It presents the ecological requirements of each habitat, their spread, main plant association and floristic composition based on the dominance of probative species. A correlation is made between habitats from different classifications, but with the same features, mentioning EUNIS codes, Emerald, Natura 2000, Palaeartic Habitats and the European forest types. This paper presents information on the spread of two types of habitats containing *Rhododendron* from Europe, the environmental conditions in which they live and the accompanying species involved, more or less, in the composition of habitats. It describes the types of vegetation in the Alps (Austria) and the Carpathian Mountains (Romania). Vegetation was observed following the research in the field.

Key words

rhododendrons species, habitats, plant communities, Carpathian Mountains, Alps Mountains

Researches concerning landscape development project of a roof garden in Timisoara Municipality

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Abstract In terms of the microclimate, the city is a desert of stone and masonry, being much hotter in the summer than the neighboring regions. Although few are the natural features of the city, trees, interesting formations of land, the area that requires arranging has very rich vegetation that helps regulate the microclimate. Therefore, for the accomplishment of the project, the valuable specimens of a special expression were kept, to which new species were added in perfect harmony with the existing ones, but that gave a special touch of freshness.

The composition has three main interest points, one in the public area, and the other two in the private area.

Due to the placement on one of the most circulated roads of the city and in an area of particular spirituality, through the presence of these three buildings of cult of the Orthodox, Baptist and Nazarene Churches, the area was created as an open space, where the passer-by, who has to travel this road daily, or the pilgrim on his way to church, can rest for a few moments, on a bench in the shade, next to the inhabitants of the block of flats for which the development was proposed. Therefore, communication of the inhabitants of the block of flats with the passers-by is encouraged, the need of socialization of the contemporary man being fulfilled.

Key words

green roof, insulation, extensive system, intensive system

Researches concerning landscape planning of the banks of the Timis River in Lugoj, Timis County

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Abstract At the order of the Lugoj Municipality City Hall, it was requested the arrangement of the land located on the left Timis River bank, from Lugoj, in the neighborhood of the open air public swimming pool Park and of Plopilor street, at 200 m from downtown, and from the Iron Bridge, aiming to continue the extensive process of modernization and arrangement of the green spaces from the municipality, represented by works of seeding of more than 100 trees on the Timis River bank, in order to consolidate the banks' resistance.

Key words

landscape, marine site, bank, urban framework

Monitoring of nitrogen compounds long ways Timis River basin

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Abstract The purpose of this paper is to monitor the content of nitrogen compounds (nitrates, nitrites and ammonium ions) of surface water taken from the Timis river. Were collected quarterly water samples from six checkpoints on the main course of the river, Slatina- Timis Caransebes, Lugoj, Gavojdia, Cebza, Graniceri points uniformly distributed between the springs and the exit point of the river, namely the border with Serbia. Framing control points on the river Timis river in quality classes highlights 3 superior sections qualitatively corresponding to I category quality. Control points Slatina- Timis , Lugoj and Caransebes shows low levels of nitrogen compounds which indicates high water quality on this section . Control points Gavojdia and Cebza register values of nitrogen compounds within the tolerances level of quality I, II and III. This section shows the trend of average pollution coming from diffuse pollution and from the natural sources. Graniceri checkpoint that collects wastewater from livestock represents the Timis river section with the highest level of nitrogen.

Key words

nitrate, nitrite, ammonium, Timis river

National Forest Office of France and his involvement in environmental education

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Abstract This paper presents the main units at the local level whereby ONF (National Forest Office of France) is involved in environmental education. Espace Rambouillet started from the desire of numerous population of Paris (about 6 million people) to get out in nature. It is open from April 1 to October 30, as it depends very much on the weather. Orleans Forest it is less than an hour from Paris, and is one of the tourist attractions of the area. Besides timber production Orleans Estates forests have as main objective to attract the public and its ecological education. Another ONF unit, important in terms of environmental education is the Arboretum national des Barres, that contain three collections spread over an area of 35 ha: geographic collection; ornamental collection (bizaretum); systematic collection. "Arboretum des pres des culands" is a private collection of ilex created by a forest engineer in 1987 on an area of 2 ha located on a riverbank. Water circuits surround ilex collection and clematite collection and aquatic perennials plants are accompanied by botanical trees and shrubs.

Key words

Arboretum, Arbofolia

Research concerning the influence of soil maintenance on financial performance of vineyards

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Abstract Research was carried out in the vineyard of the Didactic Station-Banat University of Agricultural Sciences and Veterinary Medicine of Timișoara, in 2011-2013 period and focused on different variants of soil maintenance with the aim to identify the most efficient variants of soil maintenance in terms of enforcement costs, the economic factor being in the last time a major factor that decide on the holding efficiency. Were studied two grape varieties from different groups: Burgundy variety for superior red wines, and Silvania variety with a medium ripening from table grape varieties. Average costs at Burgundy variety per research cycle ranged from 6, 400 lei/ha at variants V1 and V7 and 7,150 lei/ha at V5 variant, with a variants average of 6,721 lei/ha. Is noted that the highest annual costs per ha, was on variant with the highest percentage of manual labor. At Silvania variety, annual maintenance costs were higher than in Burgundian variety, ranging from 6,900 lei/ha in the variants V1 and V7 and 7,650 lei /ha in the V5 variant.

Key words

soil maintenance, costs, efficiency, profit

Correlations concerning the grape must sugar concentration and acidity as a result of soil maintenance influence

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Abstract Research was conducted in the vineyard of the Didactic Station, from Banat University of Agricultural Sciences and Veterinary Medicine of Timișoara, in 2011-2013, and were studied the correlations between sugar content and acidity of the grape must influenced by different soil maintenance variants. Observations and measurements were carried out on two grape varieties from different groups: Burgundy variety for superior red wines, and Sylvania for table grape varieties.

In both varieties in which raw middles of experimental variants was maintain with grassy strips (V1, V5, V7) was obtained the lowest concentration of sugar in the must and obviously the higher acidity.

Analyzing the average for the three years of study at Sylvania variety, linear correlation between sugar concentration and acidity of grape must, was strongly negative ($r = -.99^{***}$); the two variables are indistinguishable ($p < 0.0001$) in almost 100% ($r^2 = 0.99$), the quantity of must sugar being conditioned by its acidity. The average for grape sugar concentration at Burgundy variety in three experimental years was 195 ± 4.27 g/l and 5.31 ± 0.23 g/l H_2SO_4 for grape acidity. As shown by the coefficient of variation values for both studied variants variability intensity is very low.

Key words

correlation, acidity, sugar content, soil tillage

Researches concerning the evolution of grapes ripeness in some varieties from Recaș vineyards

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Abstract Research was carried out between 2012-2013 years in the S.C. Recaș S. A. vineyard. Timis. Thirteen varieties of grapes for wine were taken for investigation, of which 7 varieties of grapes for white wine (Italian Riesling, Fetească albă, Fetească regală, Sauvignon, Pinot gris, Mustoasă and Muscat Ottonel) and 5 grape varieties of red wine (Burgundy, Cabernet Sauvignon, Cădarca, Merlot, Pinot noir). The purpose of this work was to study the berries weight, sugar and acidity content of grapes varieties studied.

Evolution of the grapes ripening process, physical and chemical changes occurring in berries vary greatly depending on the variety, vineyard, soil tillage system, but especially depending on the climatic conditions of the year. Therefore the maturation process should be study each year, for each variety and each ecosystem separately.

The ripening of grapes influences also the must efficiency after processing, and especially the composition and quality of the wine resulted. Alongside the red wine grape varieties, good results have been achieved also in white wines, resulting in wines of very good quality in Muscat Ottonel, Italian Riesling and Fetească regală varieties.

Key words

grapes variety, acidity, organoleptic properties, grape maturation

Researches concerning the suitability of local wine grape varieties in western of Romania, to obtain certain types of wine

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Abstract Researches were performed between 2008 - 2010, and concerned local varieties and biotypes of wine grape, found in the residents yards and gardens from some areas of the western part of Romania, Buziaş area and some areas of Arad County. The purpose of this research was to determine the qualitative potential of identified varieties, and finally to put forward the most representative varieties as regards the possibility of obtaining quality wines. *Production quality* in the studied varieties was determined by monitoring two indicators: total sugar content and acidity of the grape, and on their base was calculated the maturity index and the alcoholic potential of grape. Determinations were made at full maturity of the grapes, in the specific weather conditions of each year. Determination of the sugar content in must (in g/l) was achieved by refractometry analysis of the must, with Zeiss handheld refractometer.

Key words

potential alcoholic, acidity, local varieties, white wines, red wines

The total acidity of the must (expressed as g/l H₂SO₄) was determined titrimetrically by titration (neutralization) of a must solution with a sodium hydroxide solution of normality known. As indicator of acids (colorless) was used phenolphthalein.

Identified local varieties and biotypes were examined in comparison with controls varieties: Fetească regală - for the local varieties and biotypes of white wine grape from townships throughout the Arad county; Italian Riesling - for local varieties and biotypes of white wine grape from Buziaş-Silagiu area, and Cabernet Sauvignon – for local varieties and biotypes of grapes for red wines; controls are varieties known and used in areas where research have been carried out.

Researches regarding the comparative analysis of the influence of different morphological characters in achieving the yield at broccoli in field conditions at the Didactic Base in Timisoara (Romania)

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Abstract Broccoli has its origin in Cyprus and Greece, from where he migrated at the early XVII century towards southern Italian peninsula in region Calabria where it came the „Calabrese” type which otherwise underlies all current cultivars.

Key words

broccoli hybrids, field conditions, morphological characters, production.

The inflorescences of broccoli contain 3,3 g % protein, 0,2 g % fat, 1,1 g % ash, 5,5 g % carbon hydrates, 130 mg % calcium salt, 76 % salts of phosphorus, 1,3 mg % iron, 3500 U.I. vitamin A, 0,10 mg % vitamin B₁, 0,21 mg % vitamin B₂, 1,1 mg % niacin and 118 mg % vitamin C.

The biological material used in our experiment was represented by 4 broccoli hybrids. These are: Chevalier F₁, Heritage F₁, Martor F₁ and Milady F₁.

Tropane alkaloids elicitation of black henbane parts with calcium and nitrogen application under hydroponics culture

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Abstract Black henbane (*Hyoscyamus niger* L.) an species in Solanaceae family has long been used as a medicinal plant, which is well known for their alkaloid secondary metabolites mainly hyoscyamine and scopolamine. Industrial synthesis of these compounds is difficult due to their complex chemical structure so the compounds are extracted from Solanaceae family plants. This study examined the effects of various calcium (Ca) and nitrogen (N) concentrations (0, 16.6, 33.3 and 50 mg.L⁻¹ as Ca₀-Ca₃ and N₀-N₃) on henbane roots and leaves dry weight and their two main alkaloids content under hydroponics culture. Results showed the highest hyoscyamine content (4.6 g/g.10⁻² and 2.69 g/g.10⁻²) were obtained at N₂Ca₂ in total foliage and root dry weight, respectively. Also, the highest scopolamine content (14.51 g/g.10⁻² and 7.77 g/g.10⁻²) were obtained at N₁Ca₂ and N₂Ca₂ in total foliage and root dry weight, respectively. In henbane plants, hyoscyamine content of leaves were increased significantly with increasing nitrogen and calcium concentration up to N₃Ca₃ treatment, while the largest leaf scopolamine content was observed in the N₃Ca₁ treatment. In the roots, biosynthesis location of alkaloids, maximum hyoscyamine and scopolamine content were observed under N₃Ca₂ and N₃Ca₃ treatments, respectively. Results also showed that hyoscyamine and scopolamine content of roots under N₃Ca₂ and N₃Ca₃ conditions were almost 67% and 64% higher than that of control plants, respectively. The largest plant total alkaloids accumulation was observed in fertilized plants under N₃Ca₁ treatment, which showed the highest elicitation index (65.70). It seems that calcium and nitrogen fertilizer are essential nutrient elements necessary for henbane growth and metabolism, which could be considered as abiotic elicitor or precursor in alkaloid biosynthesis pathway.

Key words

Hyoscyamus niger, Tropane alkaloids, Hyoscyamine, Scopolamine, Nitrogen, Calcium, Hydroponics

General and specific combining ability for ear traits in maize

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Abstract When the breeding objective is constituted by quantitative traits, especially when we expect transgressions, the choice of parental forms is much difficult. Therefore, in practice of creating new cultivars, determination of combining ability is the crucial stage. The genetic materials used in this study were six inbreed lines and 15 F₁ hybrids obtained from a 6 x 6 half-diallel mating. The objective of this study was to identify the best combiners and their crosses on the basis of their general and specific combining ability for grains number and weight per ear. In the case of this set of parents, for the

Key words

Maize, grains number, grains weight/ear, combining ability.

studied traits the non-additive gene effects have higher contribution to the additive ones. The environmental conditions have a significant influence in the achievement of grains number and a low influence on grains weight/ear. The lines TC208 and K1080 have additive effects that cause an increase in both the number of grains/ear and their weight, while at TC209line positive additive effects for grains numbers and negative for grains yield/ear are found. In other lines, the additive effects are associated with a reduction in the values of the two traits.

Genetic analysis of plant height in a half diallel population of maize

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Abstract Maize yield is a model quantitative trait because its genetic basis appears to hew closely to the classical quantitative genetics assumptions of many genes Knowledge of the way genes act and interact will determine which breeding system can optimize gene action more efficiently and will help elucidate the role of breeding systems in the evolution of crop plants. The aim of this study was to investigate the type of gene action for plant height in a half diallel cross between six inbred lines of maize. The dominance gene effects were important, explaining additive x nonadditive and nonadditive x nonadditive gene effects interaction for plant height. There are no differences between plant height of the hybrids attributed to the dominance. In the case of K1080 line a high proportion of recessive alleles associated with lower values of plant height are observed, for the line TC344 the recessive alleles express a slightly negative impact on this trait. The dominance has a bidirectional effect, given that it cause a reduction of plant height in lines TC 208 and TC209 and an increase of plants height for T291 and T298 lines, respectively.

Key words

Maize, plant height, genes effect, dominance.

Experimenting the control of a new pest – *Agriotes* spp. – in *Salix* energetic cultures of Western Romania

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Abstract Renewable energy becomes more and more important worldwide, both economically and ecologically (Donita et al. 2006). One important source of renewable energy is represented by the energetic plantations of woody species, such as various species and hybrids of *Salix*. Such plantations, covering tens hundreds of hectares, were established years ago in Western Romania and nowadays are developed at their full production potential. Despite the good development of these plantations, many pests and disease are threatening their integrity and productivity potential; amongst them, there is a new pest, *Agriotes* spp., more common to agricultural plants than trees, which was signaled for the first time damaging the *Salix* plantations. This paper aims to present the experimentation of different pest control methods and chemicals, showing the most efficient one in order to be used by practitioners from now on

Key words

Salix energetic plantations, *Agriotes* spp., pest control

Identification of the most productive species from the *Salix* genus and its use in energetic cultures

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Abstract At the beginning of the third millennium, the population on Earth is facing a few major problems: the energetic crisis, the problem of stopping the degradation of land and the problem of environmental pollution, the climate changes, etc.

The need of development of the energy system, the increased consumption of energy, the depletion of fossil fuels, the environmental pollution, etc., motivated states across the Globe to make major investments in research and development of unconventional energy systems such as:

Solar energy

Geothermal energy

Wind energy

Tidal energy

Biomass energy

From all these unconventional types of energy, we will focus on production of biomass from domestic species and hybrids of the *Salix* genus.

Key words

energy, energetic willow, biomass, hybrid

Genetic analysis of roots growth in barley (*Hordeum vulgare*)

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Abstract Drought is one of the most important environmental challenges growers have to face around the world. Drought is the cause for large grain losses every year, especially in developing countries, and the current trend in global climate change will likely lead to further losses. The objective of the present study was to evaluate the growth roots of barley. The studied biological material consisted of four barley varieties with different genetic and ecologic origin, along with their 6 one-way crosses.

The effects of parents and crosses were significant for growth roots, this indicated the presence of variability among hybrids and their parents, for this trait. The lowest values of heterosis for this character have been observed in hybrid: Andrew x Adi. The highest value of "trans" heterosis have been registered from Andrew x DH 260/18, which proves a high drought tolerance.

Key words

barley, drought tolerance, roots growth

Influence of salt stress upon chlorophyll content at some wheat genotypes

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Abstract The purpose of that study was the applying of an indirect test method to salt tolerance, based on influence determination of salt stress upon chlorophyll accumulation. Determination of chlorophyll content was realized at 7, 14, 21 days from stress induction using the portable chlorophyllmeter. The applying of some different osmotic pressure made some variations regarding the chlorophyll content. The highest value of chlorophyll content were registered at Alex genotypes while genotypes Panonicus registered a lowest chlorophyll content.

Key words

wheat, salt tolerance, chlorophyll content