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2017 yılında Bölümümüz Öğretim Üyelerince gerçekleştirilen Akaemik yayınlarla İlgili Faaliyet Bilgileri tablosu ve yayın listesi aşağıda sunulmuştur.

Yayın türü	**Sayısı**
Uluslararası makale	8
Ulusal makale	17
Uluslararası bildiri	25
Ulusal bildiri	1
Uluslararası kitap	-
Ulusal kitap	1
Diğer yayınlar	-
Atıflar	200

A. ULUSLARARARASI HAKEMLİ DERGİLERDE YAYIMLANAN MAKALELER

Arici, M., F. Coskun, G. Celikyurt, M. Mirik, M. Gulcu, N. Tokatli. 2017 "Some Technological and Functional Properties of Lactic Acid Bacteria Isolated from Hardaliye". Tarim Bilimleri Dergisi - Journal of Agricultural Sciences 23,428-437.

Hardaliye is a lactic acid fermented beverage produced from red grape or grape juice with addition of crushed mustard seeds and benzoic acid and it is widely produced and consumed in the Thrace region of Turkey. The aim of this study was to determine the dominant lactic acid bacteria (LAB) species found in hardaliye and to investigate their technological properties related to probiotic action and potential use as a starter culture for production of hardaliye. For this aim; LAB were isolated from 28 hardaliye samples (23 hardaliye samples that were obtained from different regions of Kirklareli, Turkey and 5 hardaliye samples were produced by using traditional methods in laboratory conditions). After carrying out conventional and molecular biological methods, it was found that all LAB species isolated belonged to genus Lactobacillus. The dominant species in the microbiota was found to be *Lactobacillus plantarum* while around 98% of the isolates were similar to each other. Therefore, it was well understood that a small diversity of LAB strains played role during the fermentation process. The results of this study revealed that the isolates had the potential to be used as starter cultures in hardaliye production due to their antimicrobial effects and acid production capabilities.

Key words: Hardaliye; Lactobacillus; Probiotic properties; Technological properties.

Atak, A., M. Akkurt, Z. Polat, H. Çelik, KA. Kahraman, DS. Akgül, N. Özer, G. Söylemezoğlu, GG. Şire, R. Eibach, 2017. Susceptibility to downy mildew (*Plasmopara viticola*) and powdery mildew (*Erysiphe necator*) of different Vitis cultivars. Ciencia e Tecnica Vitivinicola 32, No 1, 23-32.

Turkey has a very old history of viticulture and also homeland of the grapevine (*Vitis* spp.). *Vitis* cultivars belonging to different species are grown in almost every region in the country. However, particularly downy mildew and powdery mildew diseases affect the cultivars belonging to *Vitis vinifera*. In northern of Turkey *Vitis labrusca* and hybrids between *V.vinifera* and *V.labrusca* are rather common. *V.labrusca* cultivars or genotypes exhibit generally higher degree of resistance than *V. vinifera* cultivars. However, resistance level can vary from cultivar to cultivar and even from clone to clone within one cultivar. In this study, different *Vitis* hybrids and genotypes which exhibit different downy and powdery mildew susceptibility are compared for two years. Especially some *V.labrusca* hybrids and genotypes appeared resistance for both diseases. On the other hand, interspecific crosses and *V.vinifera* cultivars were found to be more susceptible. Using resistant lines as parent in later breeding activities, it could be possible grow high quality table cultivars with much fewer pesticide applications or possibly without them.

Key words: *Vitis* spp., fungal diseases, inoculation, resistant**,** natural infection.

This study was funded by the National Scientific and Technological Research Council of Turkey (Grant No.113O641).

Köycü, N.D., J.E. Stenger, H.M. Hatterman-Valenti, 2017. Cold Climate Wine grape Cultivar Sensitivity to Sulfur in the Northern Great Plains Region of the United States. Horthtechnology, 27 (2).

Elemental sulfur is commonly applied for powdery mildew (Erysiphe necator) protection on winegrape (Vitis sp.). The product may be used in a diversified, integrated disease management system to help prevent fungicide resistance to products with other modes of action. Additionally, sulfur may be used as a control option in organic systems. Applications of sulfur have been known to cause phytotoxic injury to susceptible winegrape cultivars, particularly those stemming from fox grape (Vitis labrusca) parentage. To improve recommendations to producers in the northern Great Plains region of the United States, a comparison of injury incidence and severity, as well as effects on yield characteristics was undertaken for 13 regional cultivars exposed to three sulfur rates (0, 2.4, and 4.8 lb/ acre a.i.) at a North Dakota State University Research Station near Absaraka, ND. Overall, four cultivars (Bluebell, Baltica, Sabrevois, and King of the North) of the 13 cultivars tested showed phytotoxic symptoms. Injury severity and incidence of these cultivars differed between years and across rates. 'Bluebell' showed consistent and severe sulfur injury symptoms. Injury to the other three susceptible cultivars tended to vary by the given environment, with King of the North generally showing the lowest injury response. Injury symptoms were not found to be associated with the overall yield or cluster weight. Results suggest that alternative spray programs that exclude sulfur-based fungicides should be recommended for 'Bluebell', 'Baltica', 'Sabrevois', and 'King of the North', whereas sulfur-based fungicides may be applied to 'Alpenglow', 'ES 12-6-18', 'Frontenac', 'Frontenac Gris', 'La Crescent', 'Marquette', 'Somerset Seedless', 'St. Croix', and 'Valiant'. Observations on fruit ripening in 2014 suggest that future research is needed to determine if a reduction of fruit quality may occur in some seasons with repeated sülfür applications or with successive annual sülfür applications for susceptible cultivars if used in an organic production system.

Key words: grapevine, leaf necrosis

Orcan, O.S., M. Kıvan, 2017. Pentatomidae (Hemiptera) Species on Fruit Trees in Saray District of Tekirdağ, Turkey. Global Journal of Advanced Research, 4(10): 293-300.
The study was coducted to determine the species of Pentatomidae (Hemiptera) found on fruit trees in the district of Saray in Tekirdağ, Turkey. Specimens were collected from Ayvacık, Büyükyoncalı, Küçükyoncalı and Sefaalan districts of Saray in between MarchNovember during 2015-2016. As a result of study, 17 species belonging to the family of Pentatomidae was identified. Rhaphgaster nebulosa (Poda), Nezara virudula (Linnaeus) and Dolycoris baccarum (Linnaeus) were found the most abundant phytophagous species in the investigated area. Among the identified species, Picromerus bidens (Linnaeus) and Zicrona caerulea (Linnaeus) are predator species.

Key words: Apple, pear, walnut, plum, mulberry, morellı, Pentatomidae, Turkey.

Özder, N., Ş. Demirtaş, 2017. Effects of artificial diets and floral nectar on parasitization performance of *Trichogramma brassicae* Bezdenko (Hymenoptera: Trichogrammatidae). Türkiye entomoloji dergisi 41 (1) 53-60.
This study was conducted to determine whether various food resources enhanced the longevity and fecundity of theegg parasitoid *Trichogramma brassicae* Bezdenko, 1968 (Hymenoptera: Trichogrammatidae) under laboratory conditions(25°C, 65% RH, 16L:8D h photoperiod) at Laboratory of Biological Control, Department of Plant Protection, Agriculture Faculty, Namık Kemal University in 2014. Newly hatched female wasps were fed on *Ephestiakuehniella* Zeller, 1879(Lepidoptera: Pyralidae) eggs with either honey, grape molasses and royal jelly as a main food, alone or double combination of this main foods or supplemented with resin (derived from plants), acacia nectar, *Paulownia* nectar, red tulip nectar, yellow asphodel nectar, apple syrup, liquid of *E. kuehniella* eggs or mashed *E. kuehniella* larvae. *Trichogramma brassicae,* females that were fed on honey and acacia nectar (17.47 d), honey + apple syrup (17.20 d), honey (16.93 d) and honey + *Paulownia* nectar (16.60 d) lived significantly longer than females that fed on other floral nectars and artificial diets. Females were fed on royal jelly + mashed *E. kuehniella* larvae (1.40 d) had the shortest longevity. *Trichogramma brassicae* females that were fed on honey (106.8 eggs), honey + acacia nectar (105.4 eggs), *Paulownia* nectar (103.13 eggs) parasitized significantly more hosts than females that fed on other floral nectars and artificial diets. Females fed on royal jelly were had the lowest parasitizing ability (3.33 eggs). These results showed that providing *T. brassicae* with honey, honey + acacia nectar, honey + apple syrup resulted in greater longevity and total fecundity than other food resources.
Key words: *Trichogramma brassicae, Ephestia kuehniella,* floral nectar, food, fecundity, longevity

Yapay besin ve bitki nektarının *Trichogramma brassicae* Bezdenko, 1968 (Hymenoptera: Trichogrammatidae)'nin parazitleme performansına etkileri

Bu çalışma, çeşitli besin kaynaklarının yumurta parazitoiti *Trichogramma brassicae* Bezdenko, 1968 (Hymenoptera: Trichogrammatidae)'e etkilerinin araştırılması amacıyla Namık Kemal Üniversitesi, Ziraat Fakültesi, Bitki Koruma Bölümü, Biyolojik Mücadele Laboratuvarı'nda laboratuvar koşullarında (25°C sıcaklık, %65 nem, 16:8 saat (aydınlık: karanlık) aydınlanma periyodu) 2014 yılında yürütülmüştür. Ergin dişi bireyler, değirmen güvesi *Ephestia kuehniella* Zeller, 1879 (Lepidoptera: Pyralidae) yumurtaları üzerinde ana besin (bal, üzüm pekmezi ve arı sütü) ve ara besin (reçine (bitkilerden salgılanan), akasya nektarı, çin kavağı nektarı, kırmızı lale nektarı, sarızambaknektarı, elma şurubu, *E. kuehniella* yumurta sıvısı ve ezilmiş *E. kuehniella* larvası) ve bu ana besinlerin ikili kombinasyonları ile beslenmiştir. Bal + akasya nektarı (17.47 gün), bal + elma şurubu (17.20 gün), bal+ çin kavağı nektarı (16.60 gün) ile beslenen bireylerin diğer besin ve nektar ile beslenen bireylere göre daha uzun yaşadığı belirlenmiştir. En kısa ömür ise arı sütü + ezilmiş *E. kuehniella* larvası (1.40 gün) ile beslenen bireylerde görülmüştür. Çalışma sonucunda toplam parazitlenen yumurta sayısı, bal (106.8 yumurta), bal + akasya nektarı (105.4 yumurta), çin kavağı nektarı (103.13 yumurta) ile beslenen bireylerde ve belirgin olarak diğer besin ile beslenen bireylerin parazitledikleri yumurta sayılarından fazla bulunmuştur. Arı sütü ile beslenen bireylerin parazitledikleri yumurta sayısı (3.33 yumurta) en düşük olarak belirlenmiştir. Bu sonuçlar, *T. brassicae*'ye bal, bal + akasya nektarı, bal + elmaşurubu verilmesinin diğer gıda kaynaklarına göre daha uzun ömür ve toplam doğurganlık sağladığını göstermiştir.

Anahtar kelimeler: *Trichogramma evanescens, Ephestia kuehniella,* bitki nektarı, besin, yumurta verimi, ömür

Özer, N., T. Şabudak, C. Özer, K. Gindro, S. Schnee, E. Solak 2017. Investigations on the role of cuticular wax in resistance to powdery mildew in grapevine, Journal of General Plant Pathology 83, No 5, 316-328.

Cuticular wax on the plant epidermis inhibits or enhances prepenetration events of powdery mildew (*Erysiphe necator* Schwein). We examined the role of cuticular leaf and berry waxes as a resistance mechanism in four grapevine genotypes (Italia × Mercan-174, Gürcü, Isabella, Özer Karası) resistant to powdery mildew after natural infection and inoculation. To understand cuticular wax properties, we determined the amount of wax and antifungal effects of thin layer chromatography (TLC) fractions from cuticular leaf and berry waxes, then assessed the chemical composition of fractions with different antifungal activities using gas chromatography/mass spectrometry (GC/MS). Susceptible genotypes Cabernet Sauvignon and Italia were used for comparison. Resistant and sensitive genotypes did not differ significantly in the total amount of wax on leaves and berries; however, 27 fatty acids, 26 alkanes, 6 terpenes, 4 indole derivatives and 4 ketones, and 3 amides, 3 phenols and 3 steroids were detected in fractions with high antifungal activity (≥75% inhibition of germination) in leaf and/or berry cuticular waxes of resistant genotypes only. These compounds may be evaluated as markers for powdery mildew resistance during genotype selection in a grapevine breeding program.

Key words: Antifungal compounds, Cuticular wax, *Erysiphe necator*, Grapevine powdery mildew

This study was funded by Namık Kemal University Scientific Research Project (NKUBAP.00.24.AR.14.26)

Sağlam Ö., A.A. Işıkber, H. Tunaz, M.K. Er, F. Bahadır, R. Şen, 2017. Preliminary Checking of Some Turkish Diatomaceous Earth Similarities with Commercial Diatomaceous Earths under Scanning Electron Microscope (SEM). Journal of Tekirdag Agricultural Faculty, The Special Issue of 2nd International Balkan Agriculture Congress, May 16-18, 2017, Tekirdağ, Turkey, p. 13-19.

Diatoms are dead bodies of unicellular algae's and made up of fossilized diatoms in aquatic ecosystems. Diatomaceous earth (DE) is a dust varying in color depending on composition, from white-grey to yellow to red and active ingredient is amorphous silicon dioxide. DEs are commonly used for purification of water, the purification of juices, separation of various oils and chemicals and also used as an insecticide. Mode of action as insecticide which damage occurs to the insects protective wax coat on the cuticle, mostly by sorption and to a lesser degree by abrasion, or both. The result is the loss of water from the insect's body through desiccation resulting in death. The efficacy of DE against insects depends on different physical and morphological characteristics of the diatoms. In present study, image properties of 10 different Turkish DE samples under Scanning Electron Microscope (SEM) were checked and compared similarities with commercial DEs, namely Protector, SilicoSec, Insecto and Pyrisec. SEM image analysis indicated that there were variations in shape and size of dead bodies of diatoms in Turkish and commercial DEs. The shapes of dead bodies of diatoms in Turkish local DE's named as CBN and BGN were found very similar with those in commercial DE, Silicosec. Local DE coded as DC has a round shape and looks similar to commercial DE of Pyrisec while local DE coded as CAN has triangle shape and its shape was different from those of all other DE samples.

Key words: Turkish Diatomaceous earth, SEM, Diatom, composition, insecticide

B. ULUSLARARASI BİLİMSEL TOPLANTILARDA SUNULAN BİLDİRİ KİTABINDA (PROCEEDINGS) BASILAN BİLDİRİLER

Altin, İ., C. Öksel, E. Bingül, M. Mirik, 2017. "Bacterial spot (*Xanthomonas axonopodis* pv. *vesicatoria*) biocontrol by using potential antagonist bacteria in Turkey" VIII International Scientific Agriculture Symposium AGROSYM 2017, 584-584.

Bacterial leaf spot of pepper and tomato caused by *Xanthomonas axonopodis* pv. *vesicatoria*, is one of the most serious diseases in many areas. The disease affects stems, leaves and fruits and causes significant losses when environmental conditions are suitable for the pathogen. Different strategies have been employed for controlling the disease such as sanitation, chemical control by using copper and streptomycin sprays. Also, biological control of the disease by treatment with antagonistic bacteria was also reported. In an attempt to control this disease biologically, the antibacterial activity of isolated 83 bacteria strains in Turkey was tested in vitro condition utilizing PSF agar. A paper disc was placed at the under of plate, and potential bacteria were inoculated on nutrient medium to test their effectiveness against *Xanthomonas axonopodis* pv. *vesicatoria*. After 25 h, the phytopathogenic bacteria *Xanthomonas axonopodis* pv. *vesicatoria* (grown in NA at 26 °C overnight) was sprayed on the plate inoculated with potential antagonist bacteria. The plates were incubated at 26 °C till the inhibition zone appeared. Antibacterial activity was assessed by measuring the average diameter of the clear zone of inhibition. Among these potential antagonist bacteria, seven of them were found effective against bacterial spot of tomato agent. The degree of shown antagonism varied from 5 to 8 mm. These results confirmed that the antagonists produce some type of toxic substance with antimicrobial effect against *Xanthomonas axonopodis* pv. *vesicatoria*, causing inhibition of the pathogen growth.

Key words: Bacterial leaf spot, biocontrol, pepper, tomato.

Altin, İ., C. Öksel, E. Bingör, M. Mirik 2017. "*In vitro* inhibition of bacterial speck of tomato *Pseudomonas syringae* pv. *tomato* by soil-borne antagonistic bacteria in Turkey" VIII International Scientific Agriculture Symposium AGROSYM 2017. 583-583.

Bacterial speck of tomato (*Pseudomonas syringae* pv. *tomato*) is a significant source of economic loss in the tomato industry. This disease is cosmopolitan in distribution, favoured by low to mild temperatures and high moisture conditions. Lesion on fruit are very small (almost pinpoint-like) spots and do not penetrate very deeply into the tissue. The spots can be raised, flat or sunken, and range in color from brown to black. Lesions may make fruit unfit for fresh market. Control of bacterial speck of tomato is possible using resistant cultivars, disease-free seed and transplants and/or by treatment with copper compounds. Nevertheless, using bacteria as biological control agents are still misused. However, the biocontrol of disease affecting several crops by this microorganism have been increasingly researched. The objective of this experiment was to evaluate in vitro biocontrol of bacterial speck of tomato by using the candidate antagonist bacteria. The study consisted of two parts: isolation and multiplication of the potential antagonists; in vitro screening of potential antagonists against *Pseudomonas syringae* pv. *tomato*. Totally one hundred and twenty- four candidate antagonist bacteria were obtained from rhizosphere of healthy tomato plants and some other fruit trees. The effect of candidate antagonist bacteria over phytopathogen Pseudomonas syringae pv. tomato was performed by the antagonistic activity measured by inhibition zone diameter. In vitro studies showed that dual cultures of all organisms significantly decrease the growth of Pseudomonas syringae pv. tomato. Interestingly, among 17 effective antagonist bacteria, three of them totally inhibited the growing ability of pathogen *Pseudomonas syringae* pv. *tomato*.

Keywords: Tomato, *Pseudomonas syringae* pv. *tomato*, antagonist bacteria, soil-borne.

Atak, A., Z. Polat, M. Akkurt, Z. Göksel, H. Çelik, G. Söylemezoğlu, K.A. Kahraman, Y. Boz, N. Özer, Z. Yıldırım, D.S. Akgül, G.G. Kandilli, Y. Doyğacı, 2017. Use of different methods to determine dısease resistance of some *Vitis* spp. VIII International Scientific Agriculture Symposium, 05-08 October, Abstract Book, Page: 559. (Oral presentation)

Fungal diseases are the most important problems that limit quality production in viticulture. Downy and powdery mildew particularly cause serious yield and quality losses in almost every grape growing region. Too many fungicides are needed for treating these diseases, whichposesa serious threat for humans and the environment. To address this problem, creating disease resistant or tolerant cultivars is suggested as most effective. Therefore, it is necessary to clarify the resistance of cultivars in terms of downy and powdery mildew. In this study, we tried to determine the resistance status of different cultivars/genotypes of Vitis against these two diseases with different methods. Natural infections and inoculation applications for downy and powdery mildew diseases had been applied for two years. The results were scored and disease severities were determined and classified according to the scale values of the cultivars/genotypes. As the second method, the existence of resistant gene regions in the cultivars/genotypes with a total of 8 different markers related to these two diseases was investigated. Finally, in addition to this, some cultivars/genotypes were examined for changes in the amounts of different phenolic components in the healthy and diseased leaves. The amount of total phenolics and antioxidants especially showed significant increases after both diseases. As theresult of the study, the researchers determined which of the cultivars/genotypes were resistant, tolerant or susceptibleto both diseases. The resistant cultivars/genotypes were mainly the cultivars from *Vitis labrusca* and interspecies.

Key words: Fungal diseases, *Vitis* spp., resistance, marker, phenolic compounds.

Avci, S. H., M. Mirik, İ. Altin, C. Öksel, 2017. "Identification and prevalence of bacterial blight of walnut (*Xanthomonas arboricola* pv. *juglandis*) on walnut orchards in Edirne" 2nd International Balkan Agriculture Congress, 40-40.

Walnut (Juglans regia L.), has great importance in agriculture due to its high nutritional value and the usage in the furniture industry. Walnut production was increasing in significant level in Turkey. Recently, severe incidence of walnut blight disease caused by *Xanthomonas arboricola* pv. *juglandis* in walnut orchards in Trace region of Turkey. In this study, bacterial isolation and identification from diseased walnut samples, obtained from walnut orchards in Edirne, were made in 2014- 2016 growing seasons. Disease symptoms were characterized by small water-soaked spots on the leaves turning with age into angular, sunken, deep-brown to black necrotic lesions which were often surrounded by a yellow-green halo on leaves and fruits. During the survey, prevalence of bacterial blight of walnut disease was determined. Sixty two infected plant samples were collected during the survey studies. Hundred and four bacterial isolates were obtained from diseased samples. Bacterial disease agent was identified according to biochemical methods. The prevalence of bacterial blight of walnut disease was determined as 86% and the incidence ratio was 28.65% in all surveyed walnut fields.

Key words: *Juglans regia*, walnut, *Xanthomonas arboricola* pv. *juglandis*, bacterial walnut blight, identification, LOPAT

Aydın A., A.A. Işıkber, M.K. Er, Ö. Sağlam, İ. Doğanay, H. Tunaz, 2017. Efficacy of Turkish Diatomaceous Earth in combinations with Entomopathogenic fungus, *Beauveria bassiana* (Bals.) Vuill against *Rhyzopertha dominica* (F.). 11th Conference of the IOBC/wprs Working Group on the Integrated Protection of Stored Products,3-5 July 2017, Ljubljana, Slovenia, p.32. (Oral presentation) ISBN: 978-961-6379-41-0

In this study, effectiveness of Turkish diatomaceous earth in combinations with entomopathogenic fungus, *Beauveria bassiana* (Bals.) local isolate against stored grain insect pest, *Rhyzopertha dominica* (F.). In this scope, biological tests were carried out in order to determine insecticidal activity of 250 and 500 ppm concentrations of Turkish diatomaceous earth (DE) alone, 150 and 300 ppm of entomopathogenic fungus, *Beauveria bassiana* (Bals.) local isolate alone and their binary combinations against *R. dominica* adults. The mortality of *R. dominica* adults and their numbers of progeny of F_1 generation were determined 7 and 14 days after the treatments and 45 days after the complete of each biological test respectively. The results of biological tests on wheat indicated that all treatments of Turkish diatomaceous earth alone (250 ppm DE and 500 ppm DE) resulted in low mortalities of *R. dominica* adults. After 7 days of the treatments, all binary combinations of Turkish diatomaceous earth (DE) and *B. bassiana* local isolate (150 ppm EP+250 ppm DE, 150 ppm EP+500 ppm DE, 300 ppm EP+250 ppm DE, 300 ppm EP+500 ppm DE) resulted in higher mortalities of *R. dominica* adults than Turkish diatomaceous earth and *B. bassiana* local isolate alone treatments. However, no treatments did not produce the complete mortality of *R. dominica* adults after 7 day of the treatments. The mortalities of *R. dominica* adults at all binary combinations of DE and EP after 7 day of the treatments, were higher than sum of the mortalities of EP and DE alone treatments. After 14 day of the treatments all binary combinations of DE and EP except treatments at the highest concentration of EP (300 ppm) for *R. dominica* also resulted in significant increase of the mortality of *R. dominica* adults. The complete mortality of *R. dominica* adults was obtained at only binary combination of 300 ppm EP and 500 ppm DE after 14 days of treatment. In parallel with the mortality results obtained from biological tests, all binary combinations of DE and EP significantly reduced F1 progeny production compared with that at control treatment. However, all binary combinations of DE and EP except binary combination of 300 ppm EP and 250 ppm DE did not completely prevent F1 progeny production of *R. dominica*. In conclusion, this study indicated that the binary combination of Turkish diatomaceous earth and *B. bassiana* local isolate would have potential to be used for control of stored-grain insects.

Key words: Turkish diatomaceous earth, entomopathogenic fungus *Beauveria bassiana*, *Rhyzopertha dominica*, biological tests

Baytekin Ö., Ö. Sağlam, 2017. Insecticidal Efficacy of Turkish Diatomaceous Earth Deposits in Stored Paddy against Rice Weevil (*Sitophilus oryzae* L.). 11th Conference of the IOBC/wprs Working Group on the Integrated Protection of Stored Products,3-5 July 2017, Ljubljana, Slovenia, p.83 (Poster presentation)

In this study were tested four different Turkish diatomaceous earth (DE) deposits (BGN-1, BHN-1, AG2N-1, CBN-1) and commercial DE deposit, Silicosec® against *Sitophilus oryzae* (L.) (Coleoptera: Curculionidae) at five different concentrations (100, 300, 500, 900 and 1500 ppm) on paddy. Mortalities of *S. oryzae* adults were determined after 7th, 14th and 21st day of the treatment. Also progeny productions of *S. oryzae* were assessed after 65 days. The efficacy of Turkish diatomaceous earth deposits, CBN-1, BHN-1 and Silicosec on paddy was almost similar at high (1500 ppm) concertation after 7th days of DE teratment while other DEs had low efficacy against *S. oryzae* adults. Complete mortalities of *S. oryzae* adults were obtained at high concentrations (1500 ppm) of BHN-1, CBN-1 and Silicosec after 14th day of DE treatment. Treatments of BHN-1, CBN-1 and Silicosec at 900 ppm concentration resulted in almost complete mortality (97.8-99 %) of *S. oryzae* after 14th day of DE treatment. After 21st day application all DE treatments except BGN-1 at 900 ppm concertation achieved complete mortalities of *S. oryzae* . The progeny productions of *S. oryzae* on the control treatments on paddy were significantly higher than those of all DE treatments. Although the complete mortalities were obtained CBN-1 treatment at 500 ppm concentration after 21st day of DE treatments, progeny productions were not completely prevented in all DE treatments. In conclusion, this study indicated that Turkish diatomaceous earth deposits, CBN-1, AG2N-1 and BHN-1 would have potential to be used for control of stored-paddy insects.

Key words: Turkish diatomaceous earth, *Sitophilus oryzae,* toxicity, paddy, Silicosec

Bilgili Y., A.A. Işıkber, H. Tunaz, C.G. Athanassiou, Ö. Sağlam, İ.Ş. Doğanay, M.K. Er, 2017. Rapid Insect Disinfestation of Dried Figs by Fumigation of Propylene Oxide as Alternative to Methyl Bromide. 11th Conference of the IOBC/wprs Working Group on the Integrated Protection of Stored Products,3-5 July 2017, Ljubljana, Slovenia, p.75 (Poster presentation)

In this study, Propylene oxide (PPO) alone and combination of PPO with low pressure (100 mm Hg) and high concentration of carbon dioxide (%92 CO_2) were investigated for rapid disinfestations of dried figs as a replacement for methyl bromide by evaluating its toxicity against major insect pests, E*phestia cautella* and *Plodia interpunctella* of stored dried figs. The complete mortality of all life stages of *P. interpunctella* and *E. cautella* was achieved at a Ct product of 45.5 and 53.2 mg h/liter for empty space fumigation respectively. It required a dosage of 11.4 and 13.3 mg/liter for empty space fumigation and 32.4 for and 30.2 mg/liter for fumigation in presence of dried figs to kill 99% of the larvae of *P. interpunctella* and *E. cautella* respectively. Thus, 2.85-fold and 2.27-fold higher dose of PPO required for PPO fumigation in presence of dried figs to obtain the complete mortality of the larvae of *P. interpunctella* and *E. cautella*, respectively. Generally PPO +vacuum and PPO+CO2 treatments were the most toxic to all life stages of *E. cautella* and *P. interpunctella* and followed by PPO alone treatment. The complete mortality of all life stages of *P. interpunctella* was achieved at a Ct product of 61.2 mg h/liter for empty space fumigation. It required a dosage of 13.9 and 72.1 and 93.1 mg/liter to kill 99% of the larvae of *P. interpunctella* when fumigated in empty space and in presence of dried figs, respectively. Thus, five-fold higher dose of PPO required for PPO fumigation in presence of dried figs to obtain the complete mortality of the larvae of *P. interpunctella*. The combination of PPO with

100 mm Hg of low pressure and high concentration of CO_2 (%92 CO_2) can be a potential as fumigant for replacing alternative methyl bromide for quarantine purposes required rapid insect disinfestation in dried figs.

Key Words: Propylene oxide, fumigant, dried fig, *Ephestia cautella*, *Plodia interpunctella*, methyl bromide, quarantine

Bozkurt H., A.A. Işıkber, Ö. Sağlam, İ. Doğanay, 2017. Determining phosphine resistance in *Sitophilus oryzae* (L.) (Rice weevil) populations from Turkey. 2nd International Balkan Agriculture Congress (AGRIBALKAN) Abstract Book, May 16-18, 2017,Tekirdağ, Turkey, p. 25. (Oral presentation).

This study was aimed at investigating the status and prevalence of phosphine resistance in *Sitophilus oryzae* (L.) populations collected from Kahramanmaraş, Adana and Şanlıurfa Province in Turkey by conducting the discrimination dose tests and the concentration–mortality bioassays. Discriminating dose tests showed that 80 % to 90 % populations of tested total *S. oryzae* populations (29 population samples) collected from three provinces were resistance to phosphine, which reveals high prevalence of phosphine resistance in the insect sampling locations. The concentration–mortality bioassays indicated that there were significant differences in resistance levels of *S. oryzae* populations collected from different provinces. Based on the resistance factors (RF) calculated by LC_{50} values *S. oryzae* populations from Adana, Şanlıurfa and Kahramanmaraş were 25- to 28- fold, 55- to 57-fold and 16- and 21-fold resistance to phsophine, respectively. The highest level of phosphine resistance was determined in *S. oryzae* populations from Şanlıurfa, followed by those from Adana and Kahramanmaraş, respectively. In conclusion, this study indicated that high levels of phosphine resistance in *S. oryzae* populations collected from different grain storages in Kahramanmaraş, Şanlıurfa and Adana provinces of Turkey were prevalent.

Key words: phosphine, resistance, *Sitophilus oryzae*, discrimination dose, Turkey

Cobanoglu, S., T. Erdogan, N. Kilic, 2017. Four new records of the false spider mites Tenuipalpidae (Acari: Prostigmata: Tenuipalpidae) from Turkey. The 3rd International Persian Congress of Acarology, 23–25 August 2017, Abstract Book, page:12.

Tenuipalpids (Acari: Teniupalpidae) are considered as phytophagous species and known as false spider mites. These species are reddish in colour, slow moving and usually feeding on plant leaves. This family has more than 1,100 species belonging to 36 genera, *Cenopalpus* Pritchard & Baker (Acari: Tenuipalpidae) is the largest one in this family with 60 species. The tenuipalpids of this study were collected in Ankara and Tekirdağ. The leaves were collected randomly at different levels of the plants. Berlese funnels were used to extract the mites from the plant material, which were subsequently preserved in 70% ethanol, cleared in lactophenol solution and mounted in Hoyer's medium. Meyer (1979), Mesa et al. (2009) and Khanjani et al. (2012) were followed for the identification of the species. Four false spider mite species were identified as a first report for the Turkish fauna. The species were identified; *Cenopalpus irani* Dosse, 1971, *Cenopalpus quadricornis* (Livshits & Mitrofanov 1967), *Cenopalpus pennatisetis* (Wainstein 1957) and *Brevipalpus recki* (Livshits & Mitrofanov 1967) described and illustrated. The samples were collected mainly from orchards in Ankara and Tekirdağ. A key belong to species of *Cenopalpus* Pritchard & Baker and Brevipalpus Donnadieu (Acari: Tenuipalpidae) known to occur in Turkey is included. Cenopalpus irani were collected from

Prunus avium L., P. amygdalus Batsch., Pyracantha coccinea Roem. (Rosaceae) and Platanus tree. *Cenopalpus quadricornis* were collected from *Prunus armeniaca* L., *P. avium* L., *Malus communis* L., *Cydonia vulgaris* L. and *Rubus fruticosus* L.

Key words: Acari, Tenuipalpidae, Cenopalpus, first record, Turkey

Coşkuntuna, A., Ş. Yonsen, N. Özer, M. Demir, 2017. Possibility of Biological Control of Grey Mould (*Botrytis cinerea* Pers.) on Grape. International Conference on Agriculture, Forest, Food Sciences and Technologies, 15-17 May 2017, Abstract Book, Page: 833. (Oral presentation)

In this study, the effect of Bacillus subtilis (Sim Bacil) was investigated against gray mould disease caused by Botrytis cinerea on grape under natural infection conditions. Two grape cultivars, Emir and Barış, which are known to be susceptible grape cultivars to the pathogen, were used. The experiments were carried out in the Viticulture Research Station of Tekirdağ as randomized blocks design. A commercial biological preparate (Serenade) with active ingredient *Bacillus subtilis* and a fungicide with active ingredient cyprodinil+fludioxanil were used for comparison. All preparations were applicated at four different periods of growing. At the end of the study, the effect of applications on Emir and Barıs cultivars Serenade, Cyprodinil + Fludioxanil, Bacillus subtilis (Sim Bacil) were 30.63%, 38.50%, 75.87%; 0%, 15.94%, and 53.96% respectively.

Key words: Vine, *Botrytis cinerea*, *Bacillus subtilis*, biological control

Coşkuntuna, A., T. Şabudak, N. Özer, 2017. Occurrence of Potential Antifungal Metabolites from Seedling Roots By Biological Control of Sunflower Downy Mildew Disease. Ecology 2017, International Symposium. 11-13 May. Abstract Book, Page: 249. (Oral presentation)

Introduction: Downy mildew caused by *Plasmopara halstedii* (Farl.) Berl. and de Toni is the most destructive disease of sunflower (*Helianthus annuus* L.). The control of the disease is usually carried out by seed application with a few fungicides which cause detrimental effects to the environments as well as risk for resistance development in the fungus populations. The use of resistant hybrids is limited because of resistance breakdown. As an alternative method, biological control is eco-friendly for plant disease management. *Asergillus flavus* Link (non-aflatoxigenic isolate; AS3), *Trichoderma harzianum* Rifai (TRIC7 and TRIC8) from Tekirdağ/Turkey soils, which were found as successful for controlling sunflower downy mildew disease at seedling stage, were evaluated for their effects on hypocotyls length, sporulation density of the pathogen and root metabolites in this study.
Material and Methods: Seed of susceptible cultivar Sirena were surface sterilized with sodium hypochlorite, then were agitated in conidia suspension (1x107 conidia/ml) of the antagonists for 6 hours and were germinated for three days on sterile germination paper. Zoosporangia suspension (1x105 zoosporangia/ml) of pathogen was inoculated to the roots of pre-germinated seeds. The length of hypocotyls and sporulation density on cotyledon leaves were measured when the leaves of control plants were covered by zoosporangia. The roots of the seedlings were extracted with ethanol (99%) for three days (1 ml/0.1 g root) and the extracts were analysed by the gas chromatography/mass spectrophotometer (GC/MS).
Results and Discussion: Sporulation reductions of 84.21, 76.30 and 70.05, % by TRIC7 TRIC8 and AS3, respectively, in cotyledon leaves were recorded after seed treatments with

these antagonists. All of the antagonists also significantly enhanced the hypocotyls length. The root extracts of seedlings contained several compounds from different chemical groups differing to the treatments. Among the metabolites, 6 aldehydes, 2 alkenes, 9 alcohols, 4 amides, a coumarin derivative, 16 esters, 4 fatty acids, 8 heterocyclic compounds, 8 carboxylic acids, 3 ketones, 3 phenols, 3 steroids, 16 terpenes were present only in the roots of antagonist treated seedlings. This study suggests the important role of antagonist treatments on induction of some compounds, which are known for their antifungal activity.

Key words: Sunflower (*Helianthus annuus* L.), downy mildew, biological control, seedling root metabolites

Acknowledgement: The authors acknowledge Central Research Laboratory (NABILTEM-NKU) for using GC/MS.

Demirci, A. Ş., İ. Palabiyik, D. Apaydin, M. Mirik, T. Gümüş, 2017. "Investigation of xanthan yield of local isolate *X. axonopodis* pv. *dieffenbachia*" The 3rd International Symposium on EuroAsian Biodiversity-SEAB 2017.

Xanthan gum is an important extracellular heteropolysaccharide that is produced efficiently by Gram-negative bacteria of the genus Xanthomonas. It is widely used as a thickening or stabilizing agent in food, pharmaceutical and oil-recovery industries. Because of its wide applications, it becomes important to develop high yield xanthan producer local strain. In this study, a native strain-isolated from anthurium, (*Anthurium andraenum*), *X. axonopodis* pv. *dieffenbachia* were evaluated in terms of xanthan gum production in industrial fermentation media.

Key words: Xanthan, *X. axonopodis* pv. *dieffenbachia*, inoculum volume, agitation rate

Doğanay İ., A.A. Işıkber, Ö. Sağlam, H. Tunaz, M.K. Er, 2017. Insecticidal efficiency of local turkish diatomaceous earth against Cowpea weevil, *Callosobruchus maculatus* (Coleoptera:Chrysomelidae:Bruchninae) adults on chickpea. 2nd International Balkan Agriculture Congress (AGRIBALKAN) Abstract Book, May 16-18, 2017,Tekirdağ, Turkey, p. 26. (Oral presentation)

In this study, insecticidal efficiency of Turkish local diatomaceous earth (DE), DE-Turco-1 against Cowpea weevil, *Callosobruchus maculatus* (Coleoptera: Chrysomelidae: Bruchninae) adults was determined on chickpea. For this purpose, different concentrations of DE-Turco-1 and commercial diatomaceous earth, SilicoSec®, (0, 250, 500, 750 and 1000 ppm (mg DE/kg chickpea) were testedunder laboratory conditions. Mortality of *C. maculatus* was recorded after 1st, 3rd and 5th day of DE treatments. Progeny production of *C. maculatus* adults exposed to DE's was also assessed after 45 days of treatment. Results showed that DE deposits and DE concentrations had significant effect on mortality and progeny production of *C. maculatus*. After 1st day of DE treatments on chickpea,the mortality on DE-Turco-1 was higher than Silicosec®. After 3rd, and 5th day on DE treated chickpea efficacy of DE-Turco -1 and SilicoSec generally was similar. After 5th day of DE treatment, the complete mortality of *C. maculatus* was observed only on 1000 ppm concentration of DE-Turco-1 and SilicoSec®. The progeny production of *C. maculatus* on the non-treated chickpea was significantly higher than on DE treated chickpea. Although, after 5 days exposure to DE and the complete efficacy of 1000 ppm concentration progeny production was not completely

prevented. In conclusion, these results indicated that Turkish diatomaceous earth, DE-Turco-1 would have potential for control of stored-bean insects as grain protectant.

Key words: Turkish diatomaceous earth, De-Turco-1, *Callosobruchus maculatus*, chickpea

Er, Y., N. Sivri, M. Mirik, 2017. "Comparison of antimicrobial effects of disc diffusion and agar well diffusion methods using some essential oil against *Rhizobium vitis*" 40th World Congress of Vine and Wine, 332-332.

The aim of this study is to determine antimicrobial effects of black cumin oil (*Nigella sativa*), mustard oil (*Sinapis* sp.), centaury oil (*Hypericum perforatum*), garlic oil (*Allium sativum*), thyme (*Thymus vulgaris*) and ginger oil (*Zingiber officinale*) against seven *Rhizobium vitis* isolates obtained from Thrace region vineyards. After bacterial isolates were tested for colonization morphology and pathogenicity, essential oils were examined for six different concentrations (5, 10, 15, 20, 25 and 30 mg/ml) to determine antibacterial activity and select suitable method according to agar disc diffusion and agar well diffusion methods. The comparison was made between these two methods. The diameters of the inhibition zones forming at the end of the incubation period were measured with a millimeter scale. The experiments were conducted with five replications, with positive and negative controls. As a result, it has been observed that the disk diffusion method has a larger diameter and a more visible zone. According to inhibition zone formation, It has been found that centaury, thyme and ginger essential oils, respectively are the most effective among the other essential oils and doses tested in disk diffusion and well diffusion methods and are observed to be a significant inhibitory effect for all tested bacterial isolates, especially at the concentration of 30 mg/ml. Inhibition zone diameter of centaury, thyme and ginger essential oils was found to be 75 mm, 32 mm, 33 mm for agar well diffusion method and 82 mm, 51 mm, 54 mm for disc diffusion method, respectively. At the last stage of the study, component analysis of antibacterial essential oils were performed by GC/MS. The major volatile compounds in the centaury, thyme and ginger essential oil were found to be camphor (20.67%), thymol (%36.9) and benzyl alcohol (43.07%) respectively.

Key words: *Rhizobium vitis*, black cumin, mustard, centaury, garlic, thyme, ginger, essential oil, agar disc diffusion, agar well diffusion, inhibition zone, antimicrobial activity, camphor, thymol, benzyl alcohol

Gültekin M.A., Ö. Sağlam, A.A. Işıkber, 2017. Insecticidal Efficacy of Turkish Diatomaceous Earth Deposits against Cowpea Weevil, *Callosobruchus maculatus* (Coleoptera: Chrysomelidae: Bruchninae) adults on chickpea. 11th Conference of the IOBC/wprs Working Group on the Integrated Protection of Stored Products,3-5 July 2017, Ljubljana, Slovenia, p.46 (Oral presentation)

In this study, insecticidal efficiency of Turkish local diatomaceous earth (DE) deposits, BHN-1, FB2N-1 and BGN-1 against Cowpea weevil, *Callosobruchus maculatus* (Coleoptera: Chrysomelidae: Bruchninae) adults was determined on chickpea. For this purpose, two different concentrations of BHN-1, FB2N-1 and BGN-1 and commercial DE, SilicoSec®, (500 and 1000 ppm (mg DE/kg chickpea)) were tested under laboratory conditions. Mortalities of *C. maculatus* were recorded after 1st, 3rd, 5th and 7th day of DE treatments. Progeny productions of *C. maculatus* adults exposed to DE's were also assessed after 45 day of treatments. Chickpea treatments results showed that DE deposits and DE concentrations

had significant effect on mortalities and progeny productions of *C. maculatus.* After 1st day of DE treatments on chickpea, the mortalities of BHN-1were higher than those of FB2N-1, BGN-1 and Silicosec®. After5th and 7th day of DE treatments, mortalities of BHN-1 and SilicoSec® generally were similar. After 5th day of DE treatment, the complete mortalities of *C. maculatus* were observed at only 1000 ppm concentrations of BHN-1. After 7th day of DE treatment at 1000 ppm, all local DEs reached %100 mortality except FB2N-1. The progeny productions of *C. maculatus* on the control treatments on chickpea were significantly higher than those of all DE treatments. Although the complete mortalities of *C. maculatus* were recorded at 1000 ppm concentration of BHN-1 after 5th day of DE treatments, progeny productions were not completely prevented. In conclusion, these results indicated that Turkish diatomaceous earth, BHN-1, FB2N-1 and BGN-1 would have potential of using for controlling of stored-bean insects as a protectant.

Key words: Turkish Diatomaceous Earth, *Callosobruchus maculatus*, chickpea, toxicity, Silicosec

Işıkber A.A., M.K. Er, Ö. Sağlam, R. Şen, H. Tunaz, 2017. Effect of temperature on insecticidal efficiency of Turkish Diatomaceous Earth against stored grain insects. Proceedings of 66th The IRES International Conference, Pattaya, Thailand, 10th-11th April 2017,p.7 (Oral presentation) ISBN: 978-93-86291-88-2

In this study, effect of temperature on insecticidal efficacy of local diatomaceous earth (DE), collected from different locations in Turkey, against the rice weevil (*Sitophilus oryzae* (L.)), the confused flour beetle (*Tribolium confusum* du Val.) and the lesser grain borer (*Rhyzopertha dominica* (F.)) was studied. For that purpose, biological tests were carried out at three temperatures (20, 25 and 30 ˚C) and %55 relative humidity (r.h.) on wheat treated with 0, 100, 300, 500, 900 and 1500 ppm (mg DE/kg grain) concentrations of Turkish diatomaceous earth. Mortality levels of *S. oryzae* generally increased with increasing temperature for the treatments of Turkish DE and mortality levels at 30˚C were significantly higher than those at 20˚C and 25˚C. For *T. confusum* adults treated with Turkish DE, mortality levels of increased with increasing temperature. However, for *R. dominica* adults treated with Turkish DE, mortality levels at 20˚C were significantly higher than those at 25˚C and 30˚C. In conclusion, present study indicated that temperature had significant effect on insecticidal efficacy of Turkish DE against tested stored grain insects. Temperature effect on insecticidal efficacy of tested local diatomaceous earths varied with tested insect species and concentration of diatomaceous earth.

Key words: Local diatomaceous earth, temperature, *Sitophilus oryzae, Tribolium confusum, Rhyzopertha dominica*

Işıkber A.A., Ö. Sağlam, H. Bozkurt, İ.Ş. Doğanay, 2017. Determining Phosphine Resistance in *Sitophilus oryzae* (L.) Populations From Different Geographical Regions of Turkey. 11th Conference of the IOBC/wprs Working Group on the Integrated Protection of Stored Products, 3-5 July 2017, Ljubljana, Slovenia, p.60 (Oral presentation)

This study was aimed at investigating the status and prevalence of phosphine resistance in *Sitophilus oryzae* (L.) populations collected from three geographical regions of Turkey (southern (Mersin provinces), south-eastern (Şanlıurfa province) and central (Konya

province) regions) by conducting the discrimination dose tests and the concentration–mortality bioassays. As a result of discrimination dose tests, six populations of total eighteen *S. oryzae* populations collected from Mersin Province were moderately resistance to phosphine while twelve *S. oryzae* populations were highly resistance to phosphine. In the case of Şanlıurfa, only one population was susceptible to phosphine out of nine *S. oryzae* populations while eight populations were determined to be highly resistance to phosphine. Amongst six *S. oryzae* populations collected from Konya only one susceptible population was determined while one population was moderately and four populations were highly resistance to phosphine. Discriminating dose tests showed that 94% of tested *S. oryzae* populations (33 population samples) collected from three provinces were resistance to phosphine, which reveals high prevalence of phosphine resistance in the insect sampling locations. The concentration–mortality bioassays indicated that there were significant differences in resistance levels of *S. oryzae* populations collected from different provinces. Based on the resistance factors (RF) calculated by LC_{50} values *S. oryzae* populations from Mersin, Şanlıurfa and Konya were 60- to 62-fold, 55- to 57-fold and 35- and 48-fold resistance to phsophine, respectively. The highest level of phosphine resistance was determined in *S. oryzae* populations from Mersin, followed by those from Şanlıurfa and Konya, respectively. In conclusion, this study indicated that high levels of phosphine resistance in *S. oryzae* populations collected from different grain storages in Mersin, Şanlıurfa and Konya provinces of Turkey were prevalent.

Key words: Phosphine, resistance, *Sitophilus oryzae*, discrimination dose, Turkey

Işıkber A.A., Ö. Sağlam, S. Eroğlu, R. Şen, S. Akçalı, 2017. Insecticidal effect of spinetoram dust against granary Weevil (*Sitophilus granarius* L.) and confused flour beetle (*Tribolium confusum* Jacquelin Du Val). 2nd International Balkan Agriculture Congress (AGRIBALKAN) Abstract Book, May 16-18, 2017,Tekirdağ, Turkey, p. 125. (Poster presentation)

In present study, residual contact toxicity of Spinetoram dust applied to wheat grains against *S. granarius* and *T. confusum* adults were investigated under laboratory conditions. In laboratory bioassays, *S. granarius* and *T. confusum* adults were exposed to wheat grains admixed with Spinetoram dust at 0.5, 1, 2.5, 5 and 10 ppm (mg active ingredient/kg commodity) at 26±1ºC temperature, 65±5% relative humidity and completely dark condition. Knockdown and mortality of the adults were recorded after 1, 3, 5 and 7 day of exposure and 35- 40 day later the wheat was examined for progeny production. The concentration of Spinetoram dust and exposure period had a significant effect on knockdown and mortality rate of *S. granarius* and *T. confusum* adults on wheat. Spinetoram dust treatments at all concentrations after 1 day of exposure resulted in low mortality of *S. granarius* and *T. confusum* adults. Spinetoram dust at 1 ppm and above concentrations after 3 day of exposure resulted in almost 100% knockdown or mortality of *S. granarius* and *T. confusum* adults and completely hindered their progeny production. There was a significant difference in susceptibility of *S. granarius* and *T. confusum* adults against Spinetoram dust. The results obtained from biological tests indicated that *T. confusum* adults generally were more tolerant to Spinetoram treatments particularly at low concentrations and exposure times than *S. garanarius* adults. In conclusion, this study indicated that Spinetoram dust on commodity would be potential to be used as grain protectant for control of *S. granarius* and *T. confusum.*

Key words: Spinetoram, *Sitophilus granarius*, *Tribolium confusum*, wheat, residual contact toxicity

Maliogka, V.I., N.I. Katis, D. Altenbach, K. Caglayan, C. Chondroudis, F. Codoner, A.T. Cunha, F. Di Serio, B. Dichio, L. Formica, H. Ilbagi, K. Kalantidis, S. Li, A. Olmos, G. Pietersen, C. Ritzenthaler, E. Tanriver, 2017. H2020-MCSA-RISE-2016-Virus Free Fruit Nurseries (VirFree). 33, June 5-9, Thessaloniki-Greece.

Fruit trees and grapevine are propagated vegetatively and are often grafted. As a result they suffer from a high number of pathogens such as viruses and viroids, with some of them causing severe yield losses and reducing the productive life of the affected plants. These pathogens cannot be controlled by the application of chemicals therefore the most efficient way to combat them is the production and commercialization of high quality pathogen-tested propagative material. VirFree brings together participants from both academia and private companies to collaborate through their expertise on the following objectives: To identify is new viral and viroid strains or species affecting fruit trees and grapevine, to optimize existing and develop novel detection methods and improve propagation and sanitation methods for producing high quality (virus-tested) plant material of fruit trees and grapevine. Diagnostic tools currently used in certification schemes will be combined with cutting edge technologies such as NGS and Nanobodies. So expected benefits are training of a new generation of researchers to fulfill the needs of both industrial and academic sectors, enrichment the knowledge on viruses/viroids associated with different diseases and improvement the sensitivity of detection methods and of the disseminated propagative material of fruit trees and grapevine.

Key words: European Union, VirFree, Virus, Viroid, Fruit trees, grapevine

Mirik, M., C. Öksel, M. Özdemir, 2017. "Identification, genotypic and phenotypic characterization of causal disease agents of bacterial canker on sweet cherry trees in Tekirdağ province of Turkey" 2nd İnternational Balkan Agriculture Congress, 37-37.

Cherry is an important fruit trees growing in Tekirdağ. *Pseudomonas syringae* pv. *syringae* and *Pseudomonas syringae* pv. *morsprunorum* are causal disease agents of sweet cherry trees causing leaf and fruit spot, stem canker, gumming, dieback, blossom blight and reduces the yield and quality of sweet cherry fruit. Bacterial canker which cherry trees causing the yield and quality loses and dieback were investigated in this study. A survey study was conducted in Barbaros, Çanakçı, Karahisarlı, Kumbağ, Merkez, Mermer, Naip and Yeniçiftlik located in Tekirdağ province between 2012-2013 years and 129 infected plant samples were collected and 138 strain were subsequently obtained. Bacterial canker was determined in all orchards with 25-50% disease prevalence and 2075% disease severity. LOPAT and GATTa tests were applied for all strains. As a result of LOPAT tests applied for all isolates, oxidase, pectolytic activite, arginine dihyrolase and hypersensitive reaction on tobacco leaves was positive. According to GATTa, isolates were identified as *Pseudomonas syringae* pv. *syringae* (+,+,,-) and *Pseudomonas syringae* pv. *morsprunorum* (-,-,+,+). Coincidentally 62-90% of selected nine isolates showed similarity. All isolates were separated into two clusters based on their phenotypic characterization. Molecular studies revealed that seventy-three bacterial strains were determined as *Pseudomonas syringae* pv. *syringae* and 65 bacterial strains were determined as *Pseudomonas syringae* pv. *morsprunorum*. All isolates were separated into two clusters based on their genotypic characterization.

Key words: Sweet cherry, *Pseudomonas syringae*, PCR, LOPAT, GATTA

Öksel, C., F. Korkmaz, H. E. Şamli, M. Mirik (2017). "Effect some plants extract against *Esscherichia coli* and *Salmonella* sp." 8th Balkan Animal Science Conference BALNIMALCON 20017.

The present study describes the *in vitro* antimicrobial activity of *Glycyrrhiza glabra*, *Eremurus spectabilis*, propolis and apricot kernel paste. *Escherichia coli* and *Salmonella* sp. were used as test organism. Antimicrobial activity was tested by paper disc diffusion method. Bacterial cultures were growth on nutrient agar for one day at 37 °C in 24 hour and suspend in nutrient broth and that concentration adjuster to 0,5 Mc Farland standart tube. 100 µl of the bacterial suspension was spread on 9 cm diameter petri dishes containing nutrient agar medium. Sterile paper discs (diameter 5 mm) were put on the medium and 20, 50, 70, 90, 110 and 130 µl of each extracts was dropped on the discs. Sterile distilled water was used for negative control. All plates were incubated at 37 °C for one day. The diameter of the clear zone around the disc was measured as milimeters.

Key words: Disc diffusion, Antimicrobial activity, *Escherichia coli*, *Salmonella* sp.

Öksel, C., İ. Altin, C. Dolaz, M. Mirik, 2017. "Biological control with candidate antagonist bacteria against bacterial fruit blotch" VIII International Scientific Agriculture Symposium AGROSYM 2017, 205-205.

Bacterial fruit blotch which is caused by *Acidovorax citrulli* is a serious disease significantly reducing production of watermelon. Turkey first found in 1995 in Edirne province. The characteristic symptom of bacterial fruit blotch in watermelon is a dark, olive-green blotch on the upper surface of infected fruit. Stages of lesion development, the initial infection site may become necrotic. Cracks in the rind surface may occur, resulting in fruit rot. Rotting watermelon fruit often ooze a sticky, clear, amber substance or an effervescent exudate. Different strategies have been employed for cotrolling the disease such as host-plant resistance, cultural control and sanitary methods, chemical control and biological control. Since antibiotics are restricted in Turkey, investigation of alternative control strategiesis importanat. The aim of this study was to evaluate the effectiveness of rhizosphera associated soils bacteria against *Acidovorax citrulli* in vitro. Soil samples were collected from different watermelon grown fields in Adana, Edirne and Mersin provinces in Turkey between 2016-2017 years and candidate antagonist bacterial strains were isolated. These candidate antagonist bacterial strains were used against pathogen and measured inhibition zone in plates. As a result of this study, the most effective 6 candidate antagonist bacterial strains inhibited the grown of the pathogen with inhibition zone diameter ranging from 7.1 to 17.0 mm. Also 4 candidate antagonist bacterial strains were effective against *Acidovorax citrulli* with inhibition zone diameter ranging from 4.0 to 6.3 mm. This study indicated that antagonist bacteria showing potential for biological control was particularly important in the management of disease.

Key words: Watermelon, antagonist, biological control, inhibition zone.

Öksel, C., İ. Altin, M. Mirik, 2017. "Biological control with candidate antagonist bacteria against *Pseudomonas syringae* pv. *tomato* and *Pseudomonas syringae* pv. *phaseolicola*" 3rd International Symposium for Agriculture and Food-ISAF 2017, 383-383.

Pseudomonas syringae is a gram-negative bacteria that infects a wide variety of plants and causes necrotic syptoms in leaves, stem and fruit. The pathogen is characterized by the ability to produce toxin such as phaseolotoxin, coronatin, tabtoxin. The strains cause disease on their hosts through the release of toxin. *Pseudomonas syringae* is globally important plant pathogenic bacteria. Different strategies have been employed for controlling the disease such as cultural control and sanitary methods, chemical control and biological control. Since antibiotics are restricted in Turkey, investigation of alternative control strategies is important. The aim of this study was to evaluate the effectiveness of rhizosphere associated soils bacteria against *Pseudomonas syringae* pv. *tomato* and *Pseudomonas syringae* pv. *phaseolicola* in *in vitro* conditions. The study consisted of two parts; isolation and purification of the potential antagonist; *in vitro* screening of potential antagonists. Totally one hundred and twenty four candidate antagonist bacteria were obtained from rhizoshere of healty tomato and bean plants. The effect of candidate antagonist bacteria over phytopathogens *P. s*. pv. *tomato* and *P. s.* pv. *phaseolicola* were performed by antagonistic activity measured by inhibition zone diameter. Eight of candidate bacterial strains inhibited growth of the pathogen with inhibition zone diameter ranging from 10.0 to 17.7 mm for *P. s.* pv. *phaseolicola*. And according to *P. s*. pv. *tomato* results, interstingly among effective antagonist bacteria, three of them totally inhibited the growing ability of pathogen *P. s.* pv. *tomato*. This study indicated that antagonist bacteria showing potential for biological control was particularly important in the management of diseases.

Keywords: Bean, tomato, rhizosphera, candidate bacteria, inhibition zone.

Öksel, C., İ. Altin, Z. Erdoğan, M. Mirik 2017. "Rhizosphera associated soil bacteria effecive against *Pseudomonas syringae* pv. *phaseolicola* in *in vıtro* conditions" VIII International Scientific Agriculture Symposium AGROSYM 2017, 204-204.

Bean halo blight caused by *Pseudomonas savastanoi* pv. *phaseolicola* is an economically important disease of bean. *Pseudomonas savastanoi* pv. *phaseolicola* is a seed-borne pathogen. Bean (*Phaseolus vulgaris*), worldwide and remains difficult to control. Races of the pathogen cause either disease symptoms or a resistant hypersensitive response on a series of differentially reacting bean cultivars. Disease syptoms are typically water-soaked lesions that eventually develop a surrounding yellow halo produced by the release of the non-spesific toxin, phaseolotoxin. Some measure of control is achieved with copper formulations and streptomycin. Pathogen free seed and resistant cultivars are recommended. So, biological control of the disease by treatment with antagonistic bacteria may used. In this study, 120 bacterial strains were isolated from different rhizosphera associated soils from different bean grown fields in Adana, Antalya, Çanakkale, Konya and Mersin provinces in Turkey. Among these strains, 26 candidate bacterial strains were selected according to HR test on tobacco and dual culture methods. The candidate bacterial strains inoculated plates were incubated at 25 °C for 24 hours and 100 ml of the pathogen bacterial suspension (107cfu/ml) sprayed on the same plates. All plates were incubated at 25 °C for 24 hours. The diameter of clear zone around the candidate bacteria was measured as millimeters. All treatments were three times replicated. As a result of this study, 8 candidate strains have been found the most effective against *Pseudomonas savastanoi* pv. *phaseolicola* in in vitro conditions. Eight candidate

bacterial strains inhibited growth of the pathogen with inhibition zone diameter ranging from 10.0 to 17.7 mm.

Keywords: Bean, rhizosphera, candidate bacteria, inhibition zone.

Özder, N., E. Tayat, 2017. The Efficacy of Monoterpenoid Componenets on Parasition Performance of *Trichogramma brassicae* (Hymenoptera: Trichogrammatidae). ISAF 2017 Ohrid /Makedonya. (18-20.10.2017).

Synthetic pesticides have been used for 50 year and have provided fast, economical, and effective pest control. However, excessive use ofchemical products has caused some adverse effects such as pesticide resistance, resurgence of new pests, side effects on nontarget organisms, and environmental contamination. Some ofthe disadvantages ofsynthetic pesticides can be avoided by using more biodegradable pest control materials with greater selectivity Consequently, interest in alternatives to synthetic pesticides has greatly increased in recent years One such alternative is the use ofnew botanical insecticides that are effective against target organisms and have shorter persistence in ecosystems. However, the impact on the natural enemies of these insecticidal compounds haven't been yet fully understood. In this study, Dialil disulfid and Limonen were tested on the egg of *Ephestia kuehniella*. After *Trichogramma brassicae* were interference to the egg, applications were done on within 24 hours respectively. The essential oil Limonen 50 µL and100 µL including two doses were applied on 2th, 4th, 6th and 8th days. The maximum output rate applied to the 8th egg 1 µL, ıt is calculated as %38,43 individuals. The lowest output of the application rate 4th 100 µL %15,53 units daily egg individuals have been identified. Applied at both doses was observed in the 2 daily eggs any output. Dialil disulfid compounds were previously dealt with another monoterpenoid when applied to the 1 and 2.5 µL doses of scrambled eggs no output has been observed.

Key words: *T. brassicae*, monoterpenoid components, insecticidal effect

Özder N., E. Tayat, 2017. The Egg Parasitisation Performance of Eugenol, Dialil disulfid and Allyl isothiocyanete Compounds on *Trichogramma evenescens* Westwood. Agribalkan 2017. Tekirdağ/Türkiye.(16-18.5.2017).

Chemical pesticides has led reducing efforts to use them due to their negative impact in environment, human health and the natural enemies. Especially in recent years, due to the potential dangers of synthetic additives in line with growing demand for natural compounds, these oils was investigated toxic effects on agricultural pests and natural enemies. However, the impact on the natural enemies of these insecticidal compounds haven't been yet fully understood. In this study, Dialil disulfid, Cuminaldehyde, Eugenol and Allyl isothiocyanate were tested on the egg of *Ephestia kuehniella*. After *T. evanescens* were interference to the egg, applications were done on within 24 hours respectively., the essential oil Cuminaldehyde 1 µL including one dose were applied on 2th, 4th, 6th and 8th days . The maximum blakened egg rate applied to the 8th day egg, it is calculated as 119±5,01 individuals. The lowest blakened egg of the application rate 6th day Dialil disulfid 50 µL 44,5± 3,19 units daily egg individuals have been identified. Applied at both doses was observed in the 2th and 4th days eggs any output. In Eugenol one dose were applied again (50 µL) and the highest blackened rate was obtained as 64,90±6,9 after 8th day of parasitization. Each of the four compounds it wasn't shown any hatching on second and fourth day after parasitism. Furthermore, another monoterpenoid compound allyl isothiocyanate was

performed at 0,1 µL dose respectively, there hasn't been observed any hatching after parasitization.

Key words: *T.evanescens*, eugenol, dialil disulfid, insecticidal effect

Özder N., E. Tayat, 2017. Effect of Cold Storage on The Qualıty *Trichogramma pintoi.* Agrosym 2017. Saraybosna/Bosnahersek (5-8.10.2017).

A mass rearing system for *Trichogramma* spp. using host eggs killed before parasitization could improve current parasitoid production methods by making the system more efficient. Parasitism rates of *Trichogramma pintoi* Voegele reared on dead *Cadra cautella* Walker kept at -20 °C during 1, 2 and 3 hour were compared. The lowest parasitization rate was obtained *Cadra cautella* eggs which had been kept at -20 °C for 3 hour. Parsitization rates were 63.52±4.86, 55.43±5.11 and 36.27±2.43. Subsequent trials focused on fitness of *T. pintoi* reared on killed embryos of *Cadra cautella*. Percentage of parasitized eggs and longevity of females were quantified. Exposure of eggs to low temperatures in freezer reduced fecundity of females.

Key words: *Trichogramma pintoi, Cadra cautella,* cold storage, parasitized eggs

Özer, N., T. Şabudak, T.H. Çiftçigil, G. Evci, M.İ. Yılmaz, 2017. Induction of Potential Antifungal Root Metabolites By Biological Control Against Sunflower Downy Mildew Under Field Conditions. Ecology 2017, International Symposium. 11-13 May. Abstract Book, Page:634. (Poster presentation)

Introduction: Downy mildew disease of sunflower (*Helianthus annuus* L.) caused by *Plasmopara halstedii* (Farl.) Berl. and de Toni causes important yield losses in the field due to primary infection through the roots. Biological control as an alternative to chemical control is safety for the environment and ecological agriculture. In this study, the effects of some fungal antagonists (*Asergillus flavus* Link (non-aflatoxigenic isolate; AS3), *Trichoderma harzianum* Rifai (TRIC7 and TRIC8) from Tekirdağ/Turkey soils, on disease severity were evaluated under field conditions and the metabolites of roots were determined for possible resistance induction in plants.
Material and Methods: Conidia suspension ((1x107 conidia/ml) of the antagonists was treated to the seeds of downy mildew susceptible line (9661) by shaking them for 6 hours. Treated and non-treated seeds (control) were sown in the experimental fields of Trakya Agricultural Research Institute, where the soil was infested with oospores of *P. halstedii* for over a decade. The experiment was conducted in a randomized complete block design in 21 m2 plots in four replications with 25 plants in each replication. Disease severity was made by using a 0-3 scale (0: no disease; 1: Light sporulation in 1-2 leaves; 2: Sporulation all of lower leaves but no stunting; 3: Stunting in plant) and effectiveness of antagonists was recorded at 60 days after sowing. The roots of the plants were extracted using ethanol (99%) for three days (10 ml/1 g) and the compounds in the extracts were determined by the gas chromatography/mass spectrophotometer (GC/MS).
Results and Discussion: TRIC8, AS3 and TRIC7 had the effectiveness of 73.6, 51.8 and 41.8%, respectively for controlling downy mildew disease. Extracts from the roots of antagonist treated plants contained 22 terpenes, 13 esters, 11 alcohols, 6 aldehydes, 5 steroids, 5 alkenes, 5 amines, 5 phenols, 3 fatty acids, 3 heterocyclic compounds, 2 ketones, 2 coumarin derivatives, which were not present in the roots of untreated control. The results indicate that the antagonists used in this study induced some potential antifungal metabolites

in sunflower. The authors suggest these metabolites will be helpful in the understanding of biochemical bases of defence reactions against downy mildew.

Key words: Sunflower (*Helianthus annuus* L.), downy mildew, biological control, root metabolites of mature plants

Acknowledgement: The authors acknowledge Central Research Laboratory (NABILTEM-NKU) for using GC/MS.

Rişvanlı M.R., Ö. Sağlam, H. Tunaz, A.A. Işıkber, K. Özcan, M.K. Er, 2017. Determination of Residual Contact Toxicity of Semi-Synthetic Spinosyn Insecticide, Spinetoram Against 3-4 Nymph Stages of American Cockroaches, *Periplaneta americana* L. 11th Conference of the IOBC/wprs Working Group on the Integrated Protection of Stored Products,3-5 July 2017, Ljubljana, Slovenia, p.107 (Poster presentation)

In present study, residual contact toxicity of Spinetoram suspension, which is semi-synthetic spinosyn insecticide, on three different surfaces (concrete, ceramic floor tile and laminate flooring) against nymph stages of *P. americana* were investigated under laboratory conditions. *P. americana* nymphs were exposed to concrete, ceramic floor tile, laminate flooring surfaces treated with Spinetoram suspension at the rates of 0.01, 0.0075, 0.005, 0.002, 0.001 mg AI/cm^2. In surface treatment of Spinetoram, exposure time and concentration had significant effect on mortality rates of *P. americana* nymphs on treated surfaces. On all treated surfaces, lower concentrations of Spinetoram (0.002 and 0.001 AI/cm^2) resulted in low and moderate mortality of the nymphs. On the other hand, 0.005 mg/cm^2 and above concentrations approximately 100 % mortality of *P. americana* nymphs. On all treated surfaces, there were significant differences in the efficacy of Spinetoram against *P. americana* nymphs at different concentrations. In general, between 7^{th} and 9^{th} days of on all applied surfaces 0.005 mg/cm^2 and higher concentrations caused 100% or almost 100% mortality of *P. americana* nymph stages. In conclusion, this study indicated that Spinetoram suspension treatment on different surfaces to have potential to be used in control of *P. americana* and to be an alternative for conventional synthetic residual insecticides.

Key words: Spinetoram, *P. americana,* residual contact toxicity

Sağlam Ö., A.A. Işıkber, H. Tunaz, M.K. Er, F. Bahadır, R. Şen, 2017. Preliminary check some Turkish diatomaceous earth similarities with commercial diatomaceous earths under scanning electron microscope (SEM). 2nd International Balkan Agriculture Congress (AGRIBALKAN) Abstract Book, May 16-18, 2017,Tekirdağ, Turkey, p. 147. (Poster presentation)

Diatoms are dead bodies of unicellular algae's and made up of fossilized diatoms in aquatic ecosystems. Diatomaceous earth (DE) is a dust varying in color depending on composition, from white-grey to yellow to red and active ingredient is amorphous silicon dioxide. DE are commonly used for purification of water, the purification of juices, separation of various oils and chemicals and also used as an insecticide. Mode of action as insecticide which damage occurs to the insects protective wax coat on the cuticle, mostly by sorption and to a lesser degree by abrasion, or both. The result is the loss of water from the insect's body through desiccation resulting in death. The efficacy of DE against insects depends on different physical and morphological characteristics of the diatoms. In this study, DE samples were scanned under Scanning Electron Microscope (SEM) which is a type of electron microscope

that produces images of a sample by scanning it with a focused beam of electrons. The electrons interact with atoms in the sample, producing various signals that contain information about the sample's surface topography and composition. In present study, image properties of 10 different Turkish DE samples under SEM were checked and compared similarities with commercial SilicoSec, Insecto and Pyrisec.

Key words: Turkish diatomaceous earth, SEM, diatom, composition, insecticide

Sağlam, Ö., F. Bahadır, N. Işık, E. Bulut, E. Nal, A.A. Işıkber, 2017. Efficacy of some Turkish diatomaceous earth deposits against adults of Confused Flour Beetle (*Tribolium confusum* Du Val) on concrete surface. 2nd International Balkan Agriculture Congress (AGRIBALKAN) Abstract Book, May 16-18, 2017,Tekirdağ, Turkey, p. 15. (Oral presentation). ISBN: 978-605-4265-46-6

In this study, insecticidal efficacy of some Turkish diatomaceous earth (DE) deposits against adults of Confused Flour Beetle (*Tribolium confusum* Du Val) on concrete surface was investigated. Three Turkish diatomaceous earths with code namely AGN1, ACN1, FB2N1 and commercial diatomaceous earth namely SilicoSec® (Biofa Company, Germany) were used in biological tests. Biological tests were performed on concrete surface, which was placed in petri dishes with 9 cm diameter. Recommendation dose of commercial DE (SilicoSec) with 3 g DE /m2 was applied on the petri dishes and spread by using fine brush. Ten adults of T. confusum were transferred to DE-applied petri dishes by using fine brush and 0.5 g broken wheat was used as food. Biological test were carried out under laboratory conditions (25 °C ±1 temperature and 55 % relative humidity). Dead adults of *T. confusum* were counted on 1st, 3rd, 5th, 7th, 10th, 14th and 21st day after DE treatment. The results indicated that adult mortality was increased with increasing exposure time. The complete adult mortality for ACN-1 and AGN-1 was observed on 10th and 21st after DE treatment, respectively. However, adult mortality for SilicoSec was observed with % 98 at 21 days later. In conclusion, Turkish diatomaceous earth, namely AGN-1 and ACN-1 showed higher residual toxicity than commercial DE, SilicoSec and can be potential as surface treatment for control of *T. confusum* adults.

Key words: *Tribolium confusum*, adults, turkish diatomoceus earth, silicosec, surface treatment

Sancar, E., M. Mirik, C. Öksel, İ. Altin, 2017. "Prevalence of bacterial knot disease and identification of *Pseudomonas savastanoi* pv. *savastanoi* in Tekirdag" 2nd International Balkan Agriculture Congress, 89-89., Doi: 978-605-4265-46-6.

Olive knot disease on olives (*Olea europaea*) is caused by the bacterium *Pseudomonas savastanoi* pv. *savastanoi* (syn. *P. syringae* pv. *savastanoi*) which infects through wounds. The galling typical of this disease is caused by phytohormones produced by the bacteria, which cause proliferation of cells surrounding the infection. This study was conducted in 2015- 2016 in several provinces of Tekirdag in Trakia region. To investigate the identification and prevalence of *Pseudomonas savastanoi* pv. *savastanoi*, totaly 256 infected knot samples collected from several olive cultivars and 52 isolates of bacterium were detected with classical characterization tests. All bacterial strains were pathogenic on olive plants and produced fluorescent pigments on King's B medium. Biochemical test results showed that the isolates were gram negative, oxidase negative, pectolytic activity negative, levan negative and

arginine dehydrolase negative, but hypersensitive reaction on tobacco leaves was positive. Additionally, prevalence of the disease was determined in Tekirdag.

Key words: *Pseudomonas savastanoi* pv. *savastanoi*, olive knot disease, olive, lopat, identification

Sivri, N., M. Mirik, 2017. "Comparison of isolation methods of crown gall of grapevine disease agent *Rhizobium vitis* in trace region" 2nd International Balkan Agriculture Congress, 91-91.

Turkey is among the prominent countries for the production of grapes worlwide and *Rhizobium vitis* caused by crown gall of grapevine is a important plant pathogen bacteria. The pathogen bacteria is responsible for crown gall on grapevine orchards. Infected grapevines that have been affected by crown gall disease produce fewer grapes than unaffected plants. The study was carried out with the aim of detection and identification of R. vitis. This study was made in 2014- 2016 growing seasons and vineyard areas were surveyed in Tekirdağ (Şarköy, Malkara, Süleymanpaşa), Kırklareli (Center) and Edirne (İpsala). Isolation from infected plant samples were made on RS, PDA or King's B medium and inoculated plates were incubated at 28 °C until bacterial growth developed. Colonies having opaque red center, domed, mucoid, white translucent margin were identified. The prevalence of crown gall of grapevine disease was determined as 55% in Tekirdağ, 88% in Kırklareli, 4% in Edirne.

Key words: *Rhizobium vitis*, grapevine crown gall, bacterial isolations,root isolations

Tayat E., N. Özder, Ö. Sağlam, 2017. Effect of some monoterpenoids on parasitization performance of *Trichogramma brassicae*. VIII International Scientific Agricultural Symposium "Agrosym 2017" October 05-08, 2017, Jahorina, Bosnia and Herzegovina, p.211. ISBN: 978-99976-632-9-0

Chemical pesticides have led in their reducing efforts to use due to their negative impact in environment, human health and the natural enemies. Especially in recent years, due to the potential dangers of synthetic additives in line with growing demand for natural compounds, these oils were investigated regarding toxic effects on agricultural pests and natural enemies. However, the impact on the natural enemies of these insecticidal compounds has not been fully understood yet. In this study, Cuminaldehyde, Eugenol and Allyl isothiocyanate were tested onthe eggs of *Ephestia kuehniella*. After *Trichogramma brassicae* had interference with the egg, applications were done within 24 hours. The essential oil Cuminaldehyde 1 µL and 2,5 µL including one dose were applied on 2th, 4th, 6th and 8th days. The maximum output rate applied to the 8th egg 1 µL, was calculated as 50,37±4,01 individuals. The lowest output of theapplication rate 4 daily 2.5 µL 27,66±3,18 units daily egg individuals have been identified. Applied at both doses was observed in the 2 daily eggs any output. In Eugenol two doses were applied again(50,100 µL) and the highest parasitisation rate was obtained as 64,90±6,9 after 8th day 50µL of parasitization. Allyl isothiocyanate compounds were previously death with anothermonoterpenoid when applied to the 0.1 and 0.3 µL doses of scrambled eggs no output has been observed.

Key words: *T. brassicae, monoterpenoid compouns, cuminaldehyde, eugenol.*

Uzun, H.I., N. Özer, M. Akkurt, C. Özer, S. Aydın, B. Aktürk, 2017. Breeding Alphonse Lavallée and Regent for downy mildew-resistant table grape genotypes: comparing seedling shoot growth under white and blue LED lamps 8th International Table Grape Symposium 1-7 October 2017, Abstract Book, Page: 100-101. (Poster presentation)

Background and Aims

Grapevine has a juvenile period covering 3-4 years and it serves as an important barrier for breeding works in seedling growth. Several studies for shortening juvenile phases of Grapevine by genetically or using plant regulators have been reported (1, 5). Improving plant cultivation techniques can accelerate plant growth and also shorten the juvenile period. After seed germination, growing of seedlings consecutively in growth room, greenhouse and open field can accelerate plant growth and reduce the length of the juvenile phase especially in subtropical ecologies. But, seedlings need artificial lighting in growth room. Nowadays, Using light emitting diode (LED) lamp is an economical solution for illumination in growth rooms and greenhouses for plant cultivation along with energy saving and functionality (4). Cope and Bugbee reported that blue light has species-dependent effect and may interact with other wavelengths of light. In addition, they stated that light quantity and quality interact to determine plant morphology (2). Dong et al stated that Red, blue or white light treatments have no significant effects on the straw height of wheat plants (3). Light quality means relative spectral irradiance of LED lamps. Blue LED lamps (425-490 nm) have been reported to positively affect vegetative plant growth in lettuce and Chinese cabbage (4). The main objective of this study was to investigate the effects of cool white and blue LED lamps on grapevine seedling shoot length in the growth room.

Experimental Procedure

Hybrid seeds of Alphonse Lavallée x Regent grape varieties were sown in torf pots filled with a substrate mixture of peat:perlitte(1:1,v/v). Pots were watered and then allowed to passively drain. Pots were placed in plastic boxes wherein temperature and relative humidity were maintained at 25 oC and 70%, respectively. Cool white(PAR=317 μmol m-2 s-1) and blue (PAR=135 μmol m-2 s-1) LED lamps were placed 10 cm above the plant canopies. Shoot lengths were measured with a vernier caliper at 3 week intervals during the seedling growth in the growth room for two months in 2017.

The experiment was designed in randomized plots with three replications and ten pots in each plot. Tests were performed using the MINITAB statistical software package. Means of measurements were compared at each date with t test with 95 % confidence level.

Main results

Blue light had no remarkable positive effect on the growth of hybrid grape seedlings in the growth room. There was no significant difference between white and blue light data at each measurement day. Cumulative shoot length of seedlings grown in the growth room ranged from 15.4 to 29.0 cm under blue light and from 25.4 to 36.0 cm under white lamp. Shoot elongation varied from 3.0 to 4.2 cm under white light and from 4.2 to 5.1 cm under blue light every three-week.

Significance of the Study and Conclusions

White and blue LED lamps have a similar effect on shoot growth of hybrid seedlings growing in growth room. Various light intensities or combination of light quality should be tested on shoot length for improving seedling growth.

This study was funded by the National Scientific and Technological Research Council of Turkey (Project number 1150176).

Uzun, H.I., N. Özer, M. Akkurt, C. Özer, S. Aydın, B. Aktürk, 2017. Effect of chemical treatments on germination of Alphonse Lavallée x Regent hybrid grape seeds. 8th International Table Grape Symposium 1-7 October 2017, Abstract Book, Page: 98-99

Background and Aims

Crossing for disease resistance of grape cultivars is one of the main interests of grape breeding. Improving germination parameters of hybrid seeds are useful in increasing the breeding success. Germination of standard grape seeds can be increased up to 90% by GA3 and H2O2 applications before stratification and alternating day and night temperatures during germination (2). But hybrid grape seeds have a lower germination rate ranging from 37% to 60%, depending on pollen sources (4). Akkurt et al. reported an increase in the germination rate of up to 64% in Kalecik Karası grape variety using BAP+GA3 combination (1). The main goal of this study was to investigate the effects of some chemical treatments on the germination of hybrid seeds of Alphonse Lavallée x Regent crossed to obtain mildew resistant table grape genotypes.

Experimental Procedure

Seeds were soaked in Gibberellic acid (GA3, 1000 ppm), Benzylaminopurine (BAP, 1000ppm) and Hydrogen peroxide (H2O2, 1 M) solutions and water(control) for 24 hours after stratification (4 months at 5 oC) and then sown in Perlitte:Peat moss (1:1) potting soil. Germination was carried out in the plastic boxes with constant temperature (27 oC) and relative humidity (99%). Germinated seeds were transferred to LED-illuminated growing room with constant temperature (25 oC) and relative humidity (99%). Total Germination (TG), Germination Speed (GS) and Germination Period (GP) were calculated using formulaeas described by Rusdy (3).Total germination data were converted into arcsinus values before statistical analysis was conducted. Means differing significantly were compared to the Tukey test at 5% probability level using statistical software program MINITAB.

Main results

Seed germination started on the eleventh day after sowing and continued until the 31st day. Total germination ranged from 60.39% to 78.32% in the control and GA3, respectively. GA3 significantly increased total germination when compared to the other treatments. The germination speed varied from a minimum of 1.79 in BAP to the maximum of 2.91 in GA3 treatment. Based on the statistical analysis, the chemical treatments had no significant effect on the germination periods, which ranged between 11 days in BAP+GA3 combination and 18 days in the control treatment.

Significance of the study and conclusions

The results of the study indicated that the rate and speed of germination of Alphonse Lavallée x Regent hybrid seeds could be increased by GA3 applications just before sowing and then growing the seedlings in plastic boxes.

This study was funded by the National Scientific and Technological Research Council of Turkey (Project number 1150176).

C. YAZILAN ULUSLARARASI KİTAPLAR VEYA KİTAPLARDA BÖLÜMLERİ

C. ULUSAL HAKEMLİ DERGİLERDE YAYIMLANAN MAKALELER

Alpaslan, D., N. Özer, 2017. Trakya Bölgesi'nde hasat edilmiş kanola (*Brassica napus* L.) tohumlarında tohum kökenli fungal etmenlerin tespiti. Bitki Koruma Bülteni 57, No 3, 263-277.

Bu çalışmada 2013 yılında Trakya Bölgesi'nde bulunan Edirne, Kırklareli ve Tekirdağ illerinden toplanan kanola tohumu örneklerinde fungal etmenlerin tespiti ve patojenisitelerinin belirlenmesi amaçlanmıştır. Çalışmada ayrıca yüksek derecede patojen bulunan fungus türlerinin kültürel ve morfolojik özellikleri tanımlanmıştır. Çalışma sonucunda Trakya Bölgesi'ndeki illere ait tohum örneklerinde yapılan incelemelerde tohumların en yüksek oranda *Alternaria* cinsi içindeki alternata türleri grubundan *A. alternata* ile bulaşık olduğu, bunu infectoria türleri grubundan *A. ethzedia* ve *A. infectoria*'nın izlediği belirlenmiştir. Tohum örneklerinde tespit edilen diğer funguslar ise *Arthrinium arundinis*, *Cladosporium* sp., *Curvularia* sp., *Fusarium* sp., ve *Phomopsis* sp. olarak tanımlanmış olup, bunlar arasında en yaygın türün *A. arundinis* olduğu görülmüştür. Fungal etmenlerle yapılan patojenisite testleri sonucunda, *A. alternata* izolatları %52.2-%76.0, *A. ethzedia* izolatları %31.5-%82, *A. infectoria* izolatları %24.7-%70.5 ve *A. arundinis* izolatları %56.20-%69.20 arasında değişen oranlarda hastalık şiddeti oluşturmuşlardır.

Anahtar kelimeler: Kanola (*Brassica napus* L.), tohum kökenli funguslar, patojenisite

Determination of seed-borne fungal pathogens on harvested canola (*Brassica napus* L.) seeds from Thrace Region

The aim of this study was to determine fungal pathogens on seed samples of canola collected in 2013 from the fields located on Edirne, Tekirdağ, Kırklareli provinces of Thrace region, and their pathogenicity. Additionally, the cultural and morphological characteristics of fungal species, which were highly pathogenic, were determined. As a result of the study, it was found that seed samples collected from Thrace region of Turkey were contaminated with *A. alternata* in the alternata species groups of *Alternaria* genus at the highest rate, *A. ethzedia* and *A. infectoria* in the infectoria species groups of the same genus followed it. Other species detected in canola seed samples were *Arthrinium arundinis*, *Cladosporium* sp., *Curvularia* sp., *Fusarium* sp., *Phomopsis* sp. and the most common species of these was *A. arundinis*. In the result of pathogenicity tests, *A. alternata* isolates caused disease severity between 52.2-76% on seedling; the isolates of *A. ethzedia* had virulence capacity ranged from 31.5 to 82%. This range was between 24.7-70.5% for *A. infectoria* and between 56.20-69.20% for *A. arundinis*.

Key words: Canola (*Brassica napus* L.), seed-borne fungi, pathogenicity

Bu çalışma, Namık Kemal Üniversitesi BAP Koordinatörlüğü tarafından desteklenmiştir. (NKUBAP.00.24.YL.13.10)

İlbağı, H., 2017. Tahıl Üretim Alanlarında Sarı Cücelik Virüs Hastalıkları (*Yellow dwarf virus* diseases) Epidemisi ve Mücadelesi. Bitki Koruma Bülteni. 57(3):317-355.

Dünyada olduğu gibi Türkiye'deki tahıl üretim alanlarında da zaman zaman epidemiler oluşturarak verim ve kalite kayıplarına neden olan sarı cücelik virüslerinin (*Yellow dwarf virus,* YDVs) neden olduğu hastalıklar tahılların en önemli hastalıkları arasındadır. 2016 yılı üretim döneminde, Türkiye'nin tahıl üretim potansiyeli yüksek olan illerinde de görüldüğü gibi, Trakya Bölgesi'nin Edirne, Kırklareli ve Tekirdağ illerindeki tahıl üretim alanlarında sarılık ve cüceliğe neden olan bu hastalıkların epidemileri meydana gelmiştir. Tahıl tarlalarında zaman zaman yaygın hale gelen bu virüs hastalıkları başta buğday olmak üzere tüm tahıl türlerinde verim ve kaliteyi düşürerek ekonomik kayıplara neden olmaktadır. YDVs hastalık epidemisinin görüldüğü Edirne ili başta olmak üzere Kırklareli ve Tekirdağ illerindeki tahıl tarlalarında arazi gözlemleri yapılmıştır. Hastalanan bitkilerin sergilediği sarılık, cücelik ve kızarıklık belirtilerinin görüldüğü kışlık buğday, arpa ve yulaf üretim alanlarından 187 adet enfekteli bitki yaprak örneği toplanmıştır. 138 buğday (*Triticum aestivum* L.), 19 arpa (*Hordeum vulgare* L.), 10 adet yulaf (*Avena sativa* L.) yaprak örneği ile birlikte YDVs'nin konukçusu çok yıllık Poaceae yabancı ot türü kamış (*Phragmites austrialis* (Cav.) Trin ex.Steudel)'tan da 20 adet yaprak örneği toplanmıştır. Enfekteli yaprak örneklerinde, YDVs'den *Barley yellow dwarf virus-PAV* (BYDV-PAV), *Barley yellow dwarf virus-MAV* (BYDV-MAV) ve *Cereal yellow dwarf virus-RPV* (CYDV-RPV) öncelikle Double antibody sandwich enzyme linked immunosorbent assay (DAS-ELISA) testi ile araştırılmıştır. Enfekteli olduklarından şüphelenilen örnekler Reverse transcription polymerase chain reaction (RT-PCR) testine tabi tutulmuştur. DAS-ELISA ve RT-PCR testleri sonucu toplam 187 adet örnekten 89 adedinde ve %47.59 oranında BYDV-PAV, 30 örnekte %16.04 oranında CYDV-RPV ve 4 örnekte ise %2.14 oranında BYDV-MAV virüsleri bireysel olarak saptanmıştır. Bunun yanısıra 187 adet örnekten 14 adedinde ve %7.48 oranında ise YDVs (BYDV-PAV, BYDV-MAV ve CYDV-RPV)'nin karışık enfeksiyonları saptanmıştır. 2016 yılında Edirne ilindeki tahıl üretim alanlarında YDVs enfeksiyonu %36.89 ile en yüksek orana sahipken Kırklareli'nde %21.93, Tekirdağ ilinde ise bu oran %14.44 olarak tespit edilmiştir. YDVs ile etkin ve uygulanabilir mücadele yöntemleri, önceki çalışmalarla saptanmıştır. Trakya Bölgesindeki tahıl üreticileri, çiftçiler ve sektörün diğer paydaşları hastalık etmenleri ve mücadelesi ile ilgili olarak sürekli bilgilendirilmektedir.

Anahtar kelimeler: Tahıl, YDVs, BYDV, CYDV, mücadele

Epidemic of *Yellow dwarf virus* diseases in Cereal Growing Areas and Their Control

Yellow dwarf virus (YDVs) diseases are one of the most important diseases which have reduced crop yield and quality in the cereal growing areas by causing epidemics from time to time on all over the world as well as in Turkey. Just as prevailing in some potential cereal producer provinces of Turkey as well as in Edirne, Kırklareli and Tekirdağ provinces of Trakya Region during the year of 2016, yellow dwarf virus epidemic diseases were taken place. Those virus diseases in cereal fields have become widespread especially in wheat fields which have reduced the yield and quality and caused economic losses. Survey studies were conducted and observation on YDVs disease epidemics in cereal fields especially in Edirne, Kırklareli and Tekirdağ provinces. At least 187 plant leaf samples were collected from the symptomatic winter bread wheat, barley and oat plants exhibiting yellowing, dwarfing, reddish symptoms and signs in the cereal growing areas. So, beside 138 bread wheat (*Triticum aestivum* L.), 19 barley (*Hordeum vulgare* L.) and 10 oat (*Avena sativa* L.) leaf

samples, 20 samples were obtained from the perennial Poaceae weed host common reed (*Phragmites austrialis* (Cav.) Trin ex. Steudel). *Barley yellow dwarf virus-PAV* (BYDVPAV), *Barley yellow dwarf virus-MAV* (BYDV-MAV) and *Cereal yellow dwarf virus-RPV* (CYDV-RPV) from YDVs were searched by employing Double antibody sandwich enzyme linked immunosorbent assay (DAS-ELISA) test. Reverse transcription polymerase chain reaction (RT-PCR) test was implemented for suspected leaf samples. As a result of DASELISA and RT-PCR tests, 89 out of 187 leaf samples at the rate of 47.59% were found infected with BYDV-PAV. As 30 samples at the rate of 16.04% had CYDV-RPV and 4 of 187 leaf samples at rate of 2.14% were infected with BYDV-MAV viruses individually. Merely 14 out of 187 leaf samples at the rate of 48% were found infected with these tested YDVs (BYDV-PAV, BYDV-MAV and CYDV-RPV) as mixed infections. During the year of 2016, YDVs infections were determined at the highest level of incidence rate being 36.89% in the cereal growing areas of Edirne province. As in Kırklareli, YDVs incidence rate was 21.93% and in Tekirdağ province, incidence rate of YDVs was determined as 14.44%. Effective and appropriate control measures against YDVs infections were determined with previous researches. So cereal producers, farmers and the other beneficiaries of food production sector in the Trakya Region have been informed steadily.

Key words: Cereal, YDVs, BYDV, CYDV, control

Kara, G., N. Özder, 2017. *Trichogramma brassicae, Trichogramma cacoecia* ve *Trichogramma evanescens* 'in konukçu ve yumurta yaşı tercihi üzerinde araştırmalar. Türkiye Bitki Koruma Bülten, 57(4), 423-432.

Bu çalışmada *Trichogrammma brassicae* Bezdenko, *T. cacoeciae* Marchal ve *T. evanescens* Westwood (Hymenoptera: Trichogrammatidae)'in (25±1^{0}C sıcaklık, %65-70, 16/8 saat (aydınlık/karanlık) aydınlanma periyotu) laboratuvarda *Ephestia kuehniella* Zeller ile *Cadra cautella* Walker (Lepidoptera: Pyralidae)konukçu ve yumurta yaşı tercihleri araştırılmıştır. Değişik yaşta yumurta verilmiştir. Her üç parazitoit türü de 1 günlük *E. kuehniella* ile *C. cautella* yumurtalarını 2 ve 3 günlük yumurtalardan daha çok tercih etmiştir. *Trichogrammma brassicae, T. cacoeciae* ve *T. evanescens* konukçusu *E. kuehniella* ile hedef konukçusu *C. cautella* üzerinde yetiştirilmiştir. Alternatif konukçu (*C. cautella*) üzerinde yetiştirilen parazitoitlerin hedef konukçu *E. kuehniella* yumurtasında parazitledikleri yumurta sayılarında bir düşme bulunmuştur.
Anahtar kelimeler: *Trichogramma brassicae, T. cacoecia, T. evanescens,* konukçu yaşı, konukçu tercihi

Investigations on host and host egg preference of *Trichogramma brassicae, T. cacoeciae* and *T. evanescens*

This study was designed to determine the preference of host and host eggs of *Trichogrammma brassicae* Bezdenko , *T. cacoeciae* Marchal and *T. evanescens* Westwood (Hymenoptera: Trichogrammatidae) at laboratory condition (25±1^{0}C temperature, %65-70 relative humidity, 16/8 hour light and dark period) on *Ephestia kuehniella* Zeller and *Cadra cautella* Walker (Lepidoptera: Pyralidae).Eggs of different ages were evaluated. All of the three parasitoids species preferred to 1 day old eggs than the 2 or 3 days old eggs of *E. kuehniella* and *C. cautella.* Significantly higher parasitized eggs were determined 1 day old eggs of *E. kuehniella.* Wasps reared from each source were tested on the source host and target host. Under the conditions *E. kuehniella* was a good host. We found that being reared on alternate host (*C. cautella*) decreased the parasitized eggs on the target *E. kuehniella.*

Key words: *Trichogramma brassicae, T. cacoecia, T. evanescens,* host age, host pereference
Kuloğlu, İ., N. Özder, 2017. Aphids (Hemiptera: Aphididae) on Ornamental Plants from Yalova Province, Turkey. ÇOMÜ Zir. Fak. Derg. 5 (2): 69–72 .

This study was carried out to determine the aphid species feeding on ornamental plants in parks of Yalova (Centrum), Armutlu District and Çiftlikköy province from 2009 to 2010. As a result of this survey 21 aphid species belonging to 13 genera Aphididae family were determined. Of these species *Macrosiphum euphorbiae* Thomas1878, *Aphis fabae* Scopoli 1763, *Aulacorthum solani* Kaltenbach, 1843, *Aphis gossypii* Glover, 1854 were found as the most common aphid species. Among the ornamental plants *Rosa* sp, *Yucca flamentosa, Begonia semperflorens* were found heavily infested by aphids.

Keywords: Yalova, Aphid, Aphididae, Ornamental plants

Yalova İlinde Bazı Süs Bitkilerinde Görülen Aphidoidea (Hemiptera) Türleri Üzerinde Araştırmalar

Yalova ilinde bazı süs bitkilerinde görülen Aphidoidea (Hemiptera) türlerini saptamak amacıyla, 2009-2010 yıllarında Yalova (merkez),Armutlu ve Çiftlikköy ilçelerini kapsayan bir çalışma yürütülmüştür. Bu çalışma sonunda Aphidoidea üst familyasında bağlı 13 cins ve bu cinslere bağlı 21 yaprak biti türü tespit edilmiştir. *Macrosiphum euphorbiae* Thomas 1878, *Aphis fabae* Scopoli 1763, *Aulacorthum solani* Kaltenbach, 1843, *Aphis gossypii* Glover *1854* türleri en yaygın yaprakbiti türleri olarak tespit edilmiştir. Araştırma sırasında yaprakbitlerinin özellikle *Rosa sp, Yucca flamentosa, Begonia semperflorens* bitkilerinde önemli ölçüde zarar yaptığı belirlenmiştir.

Anahtar kelimeler: Yalova, Yaprakbiti, Aphididae, Süs bitkisi

Şahin, G., N, Özder 2017. Düzce İlinde Fındık Üretim Alanlarında Görülen Yazıcıböcek Türleri (Coleoptera: Scolytidae) Üzerine Araştırmalar. Journal of Tekirdag Agricultural Faculty, 14(03): 27-37.

Düzce ili Esentepe, Çamlıpınar ve Hamamüstü köylerindeki fındık üretim alanlarındaki yazıcıböcek türleri (Col: Scolytidae) 2013 ve 2014 yılında yapılan bu çalışma ile tespit edilmiştir. Çalışma sonucunda, *Xyleborus dispar* Fabricius, *Xyleborus saxeseni* Ratzeburg, *Xyleborus germanus* Blanford ve *Lymantor coryli* Perris olmak üzere 4 tür saptanmıştır. Bu zararlılardan *L. coryli*' ye sadece Çamlıpınar köyünde çok az oranda rastlanılmıştır. 2014 yılında Esentepe köyünde diğer türlere oranla *X. dispar* erginlerinin sayısı fazla iken Çamlıpınar ve Hamamüstü köylerinde *Xyleborus saxeseni* erginlerinin sayısı daha fazla bulunmuştur. Çamlıpınar köyündeki yazıcıböceklerin 2013 yılındaki ilk ergin çıkışları 13-18 Mart arasında belirlenmiştir. 2014 yılında *X. dispar* ve *X. saxeseni*'nin ilkbahardaki ilk ergin çıkışları Mart ayının ikinci haftasından itibaren (13-19 Mart) saptanmışken, *X. germanus*'un ilkbahardaki ilk ergin çıkışları Mart ayının son haftasında (21-27 Mart) olmuştur. *X. dispar*' ın yaz dönemindeki çıkışı Temmuz ayının ilk haftasından itibaren başlamıştır. 2013 ve 2014 yılında bahçelerde yazıcıböcek zarar oranı tespit edilmiştir.

Anahtar kelimeler: Düzce, Fındık, *Xyleborus dispar, Xyleborus saxeseni, Xyleborus germanus, Lymantor coryli*

Research on Bark Beetle Species (Coleoptera: Scolytidae) Seen in Hazelnut Orchards in Düzce

This study was carried out to determine the bark beetles species collected in Düzce (Esentepe, Çamlıpınar and Hamamüstü) during the 2013-2014. Four bark beetles (Col: Scolytidae), were determined at the end of this study. These species are *Xyleborus dispar* Fabricius, *Xyleborus saxeseni* Ratzeburg, *Xyleborus germanus* Blanford and *Lymantor coryli* Perris. *L. coryli* was found very few rate in only Çamlıpınar village. The number of *X. saxeseni* adults was found much more in the village of Hamamüstü and Çamlıpınar while in Esentepe the number of *X. dispar* bark beetles was more compared to the rate of other species in 2014. First adult flights of bark beetles in Çamlıpınar village were determined between 13-18 March in 2013. First adult flights *X. dispar* and *X. saxeseni* in spring were determined from the second week of March (13-19 March), the first adult flights of *X. germanus* happened at the last week of March (21-27 March) in 2014. The flights of *X. dispar* in summer term begin from the first week of July. The harm rate of bark beetles were determined in hazelnut orchards in 2013 and 2014.

Key words: Düzce**,** Hazelnut, *Xyleborus dispar*, *Xyleborus saxeseni*, *Xyleborus germanus*, *Lymantor coryli*

E. ULUSAL BİLİMSEL TOPLANTILARDA SUNULAN VE BİLDİRİ KİTAPLARINDA BASILAN BİLDİRİLER

Bahadır F., Ö. Sağlam, 2017. Depolanmış ürün zarlılarının kontrolünde Diatom toprağı. 7. Ulusal Tarım Öğrenci Kongresi, 3-5 Mayıs 2017, Konya.

Tarımsal ürünler, beslenme konusunda ülkemizde ve dünyada büyük öneme sahiptir. Bu tarımsal ürünlerden özellikle buğday, pirinç, arpa, yulaf, çavdar, mısır insanların beslenmesinin başlıca kaynaklarını oluşturur. Bu tarımsal ürünlerde depolanmış ürün zararlıları yaklaşık % 10 oranında kayıplara neden olmaktadırlar. Depo zararlılarının bu ürünler ile beslenmeleri sonucunda ürünlerde ağırlık kayıplarına, tohumluk özelliğinin düşmesine, kalite ve besin değerlerinde olumsuz değişimlere yol açarak ticari değerinin düşmesine neden olmaktadır. Türkiye'de depolanmış ürün zararlılarıyla mücadelede insektisitlerle birlikte yaygın ve ucuz fumigant olarak alüminyum ve magnezyum fosfin kullanılmaktadır. Ancak son yıllara Fosfinin böceklerde dayanıklılığa neden olması ve etki etmemesine ilişkin yayınlar artmış ve dünya genelinde yüksek dayanıklı popülasyonlar tespit edilmiştir. Bunlara karşı güçlü bir alternatif olan diatom toprağı; zararlıların daha az direnç göstermesi, üründen kolay uzaklaştırılması ve kalıntı bırakmaması nedeniyle depolanmış ürün zararlısı böceklerin mücadelesinde kullanılmaya başlanmıştır. Kimyasal olarak incelendiğinde bünyelerinde yüksek miktarda Silisyum oksit (SiO_2) içermektedir. Diatom toprağının böceklerin vücut duvarlarına yapışarak ve yağ hücrelerini absorbe ederek su kaybından ölümüne neden olduğu bilinmektedir. Ülkemizde henüz ticari bir formu satılmayan diatom toprağının; kullanımının kolay olması, depolanmış ürünlerde uzun süre kalabilmesi, dayanıklılık sorunu olmaması ve insanlara toksik kalıntı sorunu olmaması nedeniyle depo zararlılarıyla mücadelede kullanımının yaygınlaşacağı düşünülmektedir.

Anahtar kelimeler: Diatom toprağı, Tahıl, Depo Zararlıları, Fumigant

F. DİĞER YAYINLAR

İlbağı, H., 2017. Virüs Hastalıklarından Arındırılmış Meyve Fidanlıklarının Oluşturulması. AVRUPA BİRLİĞİ-HORIZON 2020-MSCA-RISE-Project-2017-2021.Türkiye-NKU-Proje Yürütücüsü.

2017 yılında başlatılan Avrupa Birliği-Horizon 2020-MSCA-RISE projesi 9 ülkenin işbirliğinde gerçekleştirilmekte olup 5 üniversite, 6 araştırma enstitüsü ve 5 firmanın katılımı ile yürütülmektedir.

Meyve ağaçları ve bağlarda virüs ve viroid hastalıkları vejetatif üretim materyali ve aşı yoluyla taşınarak yüksek oranda verim ve kalite kayıplarına neden olmaktadırlar. Bu patojenlerin bazıları üründe yüksek düzeyde kayıplara neden olarak meyve ve bağ tesislerinin üretimini önemli oranda düşürmektedir. Virüs ve viroid hastalıkları ile enfekteli fidanlıklardaki bitki materyallerinin Uluslar arası ticareti esnasında dünya çapında yayılması büyük önem taşımaktadır. Lokal alanlarda ise vektörler yoluyla taşınma rol oynamaktadır. Meyve ağaçları ve bağlarda virüs ve virüs benzeri hastalıklarla mücadelede en etkili yolun dayanıklı kültivar seçimi olduğu bilinen bir gerçektir. Sertifikalı bitki çoğaltım materyalinin üretimi ve kullanımı söz konusu patojenlerin kontrol stratejileri açısından son derece önemlidir. Bu proje kapsamında virüs ve viroidlerin elemine edilmesini sağlayan serolojik ve moleküler teşhis metotları kullanılarak patojenden arındırılmış sağlıklı bitki üretim materyalleri elde edilecektir. Bu amaçla biyolojik indeksleme, serolojik ve moleküler teknikler birlikte kombine edilerek uygulanacaktır. Ayrıca son yıllarda bitki virolojisi alanında virüs ve virüs benzeri patojenler için uygulanan yeni nesil DNA dizileme teknolojisi: Next-generation sequencing (NGS)'den yararlanılacaktır. Bu amaç doğrultusunda Üniversiteler, Araştırma Enstitüleri, özel firma ve şirketlerin işbirliğinde yürütülmekte olan bu araştırma projesi ile virüs ve viroidlerin elemine edilmesi amacıyla yeni teşhis ve tanı metotları kullanılacak, var olan metotlar geliştirilecek, yeni saptanacak patojenler karakterize edilecektir. Bu sonuçlar doğrultusunda meyve ağaçları ve bağlarda yüksek kalitede bitki çoğaltım materyalleri elde edilecektir.

Anahtar kelimeler: Avrupa Birliği, Virüs, Viroid, Meyve, Bağ

Virus Free Fruit Nurseries

Fruit trees and grapevine are valueable crops which are infected with high number of viruses/viroids due to their vegetative propagation and grafting. Some of these pathogens cause severe crop losses and often reduce the productive life of the orchards and vineyards. The most important cause for the worldwide spread and accumulation of viruses and viroids have been the international trading of infected nursery plant material. Subsequently, vector transmission might occasionally play a role in the spreading of these agents at the local level. Selection of resistant cultivars is the most effective way of combating virus and virus-like diseases of fruit trees and grapevine. Control strategies are mainly focused on the production and use of certified plant propagative material. For this purpose virus and viroid elimination techniques are applied while the Phytosanitary status of the regenerated plants is evaluated by serological and molecular tools. It is still required to combine serological or molecular techniques with biological indexing. The advent of next-generation sequencing (NGS) technologies during the last years has dramatically changed research on viral and virus-like pathogens. In this proposal we are bringing together Academia and Private companies which are involved on the improvement of existing and development of novel diagnostic methods used for testing propagative material, improvement of virus and viroids elimination techniques and propagation processes, as well as on the detection and characterization of new pathogens with an ultimate target to assist the production of high quality plant material of fruit trees and grapevine.

Key words: European Union, VirFree, Virus, Viroid, Fruit trees, grapevine