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Research Article

IDENTIFICATION OF DELAMINATION HARMS IN MEAGER COMPOSITE PLATES UTILIZING NONCONTACT ESTIMATION OF UNDERLYING POWERFUL CONDUCT

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ABSTRACT

Plate-molded composite designs are commonly carried out in an assortment of utilizations connected with the aviation or auto industry. Exposed to genuinely natural conditions, those designs might be troubled by sway loads. Low-speed impacts specifically are a high security issue since they can cause scarcely apparent or imperceptible harms inside the design. The caused surrenders change from scores and breaks to delaminations on a deeper level. Their normal outcome is a huge decrease of pressure and exhaustion strength. To decide the respectability of composite designs, various standards, for the most part ultrasonic testing, can be utilized. Since these techniques are normally tedious, a quicker and all the more effortlessly applied essential test strategy may offer benefits. Such a test technique can be acquired by examining the vibrational conduct of composite designs. Utilizing the vibrational examination approach, the reaction frequencies are thought of, yet in addition other modular properties, particularly the modular damping.

KEYWORDS

Carbon fiber-supported plastics, Composites, Modular properties, Primary powerful examination and estimation, slim plates.

INTRODUCTION

The utilization of fiber-built up plastics can be viewed as cutting edge in the fields of air transportation just as in the car business. For the most part, fiberreinforced plastics are beneficial due to their relatively low thickness combined with predominant explicit solidness and strength. Consequently, such materials are a sensible decision, any place elite execution or weight decrease is critical.

As it is dangerous to essentially fortify fiber-supported plastics against sway harms, primary wellbeing observing (SHM) frameworks for composites are an ebb and flow research theme. These SHM frameworks empower an early harm discovery and ordinary data concerning the current material status. Thus, the focal idea of these frameworks is to empower structure honesty explanations by cyclic or super durable checking of the composite part. During their utilization in genuine applications, parts are normally exposed to various activity loads, coming about in possible twists, yet additionally prompting motions of the part. Consequently, it is sensible to put together conceivable construction trustworthiness proclamations with respect to the oscillatory or vibrational conduct. To portray the vibrational conduct of a part, a modular or underlying unique investigation is regularly applied. The basics and present status of this estimating technique is, for example, depicted by Ewins. Aside from isotropic materials, modular testing is similarly as attainable for composites, depicted for instance in Gibson, and examinations on their vibrational conduct are as of now as yet continuous.

Underlying unique properties are made out of eigenfrequencies, eigenmodes and the damping conduct portrayed through the damping proportion. Also, the estimation strategy for the capacity and the misfortune modulus are introduced, which depict the viscoelastic properties of composites and plastics.

Albeit, beginning tests have shown that studying eigen frequencies is less applicable for setting up a composite SHM framework as the shift of reaction frequencies is regularly inadequately convincing. For the standard primary unique tests, three points should be obviously characterized. These are the estimation and excitation technique just as the bearing kind.

MATERIALS AND TECHNIQUES

In the accompanying, the plate-molded examples' assembling, the making of fake imperfections and quality control strategies that are talked about. In addition, the current estimation arrangement and the computation approach for deciding the primary unique properties are portrayed.

Also, to the fiber volume content estimations, ultrasonic testing was applied as a quality control test, since it considers the assessment of the plate's material respectability. Henceforth, following the assembling system, each plate was checked for assembling abandons and other recently gotten harms with the assistance of a Hillger ultrasonic estimating instrument. Also, the falsely harmed plates were inspected involving ultrasonic testing to portray delamination regions.

The direction of the plate is acknowledged as a suspended sort with sans free limit conditions. Here the edges of the tried example are not clasped. For this, a solitary 0.2 mm thick nylon string is gotten over and turned by pulleys at the four corners. A draping mass toward one side of the string ensures steady string strain. Direction with free limits are adequate as they don't confine any emerging mode shapes and probably have little impact on the damping conduct. Nonetheless, such orientation grant unbending body developments of the example plate, and hence a high-pass channel is required.

To accurately mark or number the deliberate mode shapes and to draw a nearer understanding on the vibrational conduct of composites plus, a recreation utilizing the Limited Component Strategy was performed. The recreation was directed with Ansys Workbench and the composite apparatus ACP. As the information sheet didn't indicate all essential trademark upsides of the material, an insightful methodology with covering exemplary overlay hypothesis radiates was utilized. In light of this technique, great assessments for extra trademark esteems were acquired, by connecting solidness articulations with quantifiable eigenfrequencies.

RESULTS AND CONVERSATION

In this segment, ultrasonic examinations on the harm region aspects and shapes are introduced and talked about. Moreover, the adjustment of the vibrational conduct because of effect harms is illustrated and the relating trial information are graphically shown. Furthermore to the examination report, the trial information is utilized trying to get a standardization strategy for the damping proportion of various fiber-built up plates.

Harm Region Assessment

As referenced previously, the plate-formed examples are studied with the ultrasonic estimating instrument to empower the assessment of the falsely presented sway harms. As suggested by Noise 65561, an effect energy of 5.5 J is a decent starting worth to accomplish a BVID in covers with 8 layers. The thickness of such overlays is roughly 1.7 mm and the referenced effect energy was projected from the 3.3 J reasonable for 1 mm covers.

The excess and recently expected clarification is that the actuated delamination regions broaden the current

material damping. This is likely brought about by added rubbing surfaces. Utilizing more grounded excitation frameworks these new regions could even prompt break edge shaking. Notwithstanding the impacts on the damping proportion and misfortune modulus, the eigenfrequencies and the capacity modulus changed in much the same way. Be that as it may, in rate terms the shift was uniquely around 0.07 % for the eigenfrequency and 0.15 % for the capacity modulus, individually. It is accepted that the referenced bearing impacts are answerable for this.

CONCLUSION

Harms or rather delamination regions increment with the effect energy. An effect harm causes diverse delamination shapes relying upon the overlay stacking. Subsequently, the harm shape shows an accentuation in the peripheral layers' course. Concerning the arrangement, excitation strength and recurrence clear speed were recognized to impact the deliberate damping proportions. Consequently, it is reasonable to remember the two impacts for standardization draws near. For the studied arrangement changes, just minor between conditions between changes in the acoustic excitation and the effect harm's impact were found. Regardless of whether generously more noteworthy excitation qualities further develop the harm recognition is as yet forthcoming.

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Research Article

TAXONOMY, DYNAMICS OF DEVELOPMENT AND DAMAGE OF DIASPIDIDAE IN SEED FRUIT ORCHARDS

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ABSTRACT

In order to identify the main pests of seed orchards, as a result of observations on apple, beech and pear orchards on farms in Tashkent region, 3 genera *Lepidosaphes*, *Diaspidiotus* and *Parlatoria* belonging to the family Diaspididae were recorded in orchards.

They were found to be distributed in 3 species *Lepidosaphes ulmi* (Linnaeus, 1758), *Diaspidiotus perniciosus* (Comstock, 1881) and *Parlatoria oleae* (Colvée, 1880) from the family Diaspididae, and 2 were recorded as dominant species.

In order to create a species composition and GIS map of the Diaspididae family in seed orchards, 12 coordinates of pests in apple, quince and pear orchards were determined and a GIS map was constructed.

KEYWORDS

GIS, population, bioecology, habitat, mature breed, offspring, larvae, apple, pear, quince, coordinates.



INTRODUCTION

In recent years, the republic's horticulture is facing serious difficulties in the system of protection of fruit crops from pests. Many species of pests and pathogens that were previously of no economic importance are now beginning to cause serious damage to gardens.

The technologies used in Uzbekistan to control pests of fruit crops have significant shortcomings and need to be reconsidered. The main pests of the gardens were not monitored. Therefore, it is necessary to provide information on the current state of gardens in the country, the composition of pests and their level of damage, the rate of annual increase. To reduce the level of exposure to pesticides, it is necessary to develop ways to integrate chemical and biological control methods using microbiological agents.

In view of the above, it is important to identify the species currently affected by the Diaspididae family in orchards and their taxonomy, as well as entomophagous mass pest species, to map the distribution of GIS in the country and to use new generation insecticides. reaches

MATERIALS AND METHODS

The research was conducted in Tashkent region, Institute of Zoology of the Academy of Sciences of the

Republic of Uzbekistan, Laboratory of Ecology of Entomophages and Theoretical Foundations of Biosteres. In the seed orchards, 3 generations of Lepidosaphes, Diaspidiotus and Parlatoria belonging to the family Diaspididae were recorded and specimens were collected. Some of these materials are stored in the collection of the Department of Entomology of the Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan. The main materials were collected from different biotopes of Tashkent region in 2020-2021.

Regular field observations on the biological and ecological characteristics of the identified species were conducted in Tashkent region, and practical laboratory observations were conducted in the Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan, Laboratory of Entomophagous Ecology and Biosulfits and the results were compared.

RESULTS AND DISCUSSION

The fauna and taxonomic analysis of pests found in seeds of Tashkent region were studied. As a result of research and observations, the following are the results of taxonomic analysis of pests in the fruit of Tashkent region (Table 1).

Table 1
Taxonomy of insects of the family Diaspididae in seed orchards (2020-2021)

Синф	Туркум	Оила	Авлод	Тип
Insecta	Hemiptera	Diaspididae	<i>Lepidosaphes</i>	<i>Lepidosaphes ulmi</i>
			<i>Diaspidiotus</i>	<i>Diaspidiotus perniciosus</i>
			<i>Parlatoria</i>	<i>Parlatoria oleae</i>

As can be seen from the table, according to the taxonomic composition of the pest fauna in the seed of Tashkent region, 1 genus Hemiptera, 1 family, 3 genera and 3 species of insects belonging to the class Insecta in the fauna were recorded. Three species of *Lepidosaphes ulmi* (Linnaeus, 1758), *Diaspidiotus*

perniciosus (Comstock, 1881) and *Parlatoria oleae* (Colvée, 1880) were found to be distributed from the Diaspididae family. In order to create a species composition and GAT map of the main pests of the Diaspididae family in seed orchards, 12 coordinates of pests in apple, quince and pear orchards were identified and a GIS map was drawn (Figure 1).

Class: Insecta;
Category: Hemiptera;
Family: Diaspididae;
Genus: *Lepidosaphes*.
Species: *Lepidosaphes ulmi*



Lepidosaphes ulmi (Lin., 1758)

Very common, more damage to poplar, willow, rose, all fruit trees and apples. The length of the comma shield is 1-3 mm. The body of the female is elongated, the posterior end is widened, the color is whitish-gray, the male is smaller. The eggs are white, oval in shape.

Damage. The comma-shaped shield sometimes damages figs, pistachios, citrus fruits, olives, junipers, grapes, greatly reducing their commodity value. These

insect-infested trees and shrubs do not grow well, twigs and branches die, and sometimes trees and shrubs (especially at a young age) can dry out completely. Infection with *Lepidosaphes ulmi* in Qibray district of Tashkent region (41° 25'13" N 69° 25'56" E), (41° 23'19.8" N 69° 25'05.2" E); In Ortachirchik district (41° 10'10" N 69° 18'24" E); It was recorded in the coordinates of Akhangaron district (40° 56'04" N 69° 35'13" E).

Class: Insecta;
Category: Hemiptera;
Family: Diaspididae;
Genus: *Diaspidiotus*.
Species: *Diaspidiotus perniciosus*



Diaspidiotus perniciosus (Coms., 1881)

The female is lemon-yellow in color, noxious in shape, 1.3 mm long, with no eyes, legs or mustache. The shield is round, 2 mm in size, bulging, dark or brown in color, with 2 larval skin marks in the middle.

Damage. Seed and fruit trees such as apple, pear, peach, cherry, plum are a pest of 270 species of plants in total. Larvae and adults cause great

damage by sucking the body sap from the branches and bushes of trees, tearing the bark when overgrown, the quality of the fruit deteriorates, i.e. red-purple spots on the fruit fall off and even dry out the whole tree. *Diaspidiotus perniciosus* Seed infestation in Qibray district of Tashkent region (41° 25'13" N 69° 25'56" E), (41° 23'50" N 69° 28'51" E), (41° 23'36" N 69° 27'10" E), (41° 23'36.9" N 69° 27'13.9" E); It was recorded in the coordinates of Pskent district (41° 00'42" N 69° 20'50" E).

Class: Insecta;
Category: Hemiptera;
Family: Diaspididae;
Genus: *Parlatoria*.
Species: *Parlatoria oleae*



Parlatoria oleae (Colvée, 1880)

Small insects (1-1.3 mm). Its female is pentagonal in shape, thick, purple, shield (2-2.5 mm) white or gray. The male is small (1 mm), elongated in shape, white in color, has a spot in the middle.

Damage. Coccidia absorb and weaken the sap of trees, often destroying some branches and especially young branches, and sometimes completely drying out the trees. Coccidia stain the fruit and reduce its

quality. For example, on the Kibray farm in Tashkent region, about 50 percent of some purple apple varieties have 20 or more spots. Ninety percent of the fruits were found to have spots. Infection with *Parlatoria oleae* in Qibray district of Tashkent region (41° 23'19.8" N 69° 25'05.2" E), (41° 23'36.9" N 69° 27'13.9" E); In Ortachirchik district (41° 10'10" N 69° 18'24" E); In Yangiyul district (41° 11'00.0" N 69° 04'58.8" E); In Akhangaron district (40° 56'04" N 69° 35'13" E); It was recorded in the coordinates of Pskent district (41° 00'42" N 69° 20'50" E).

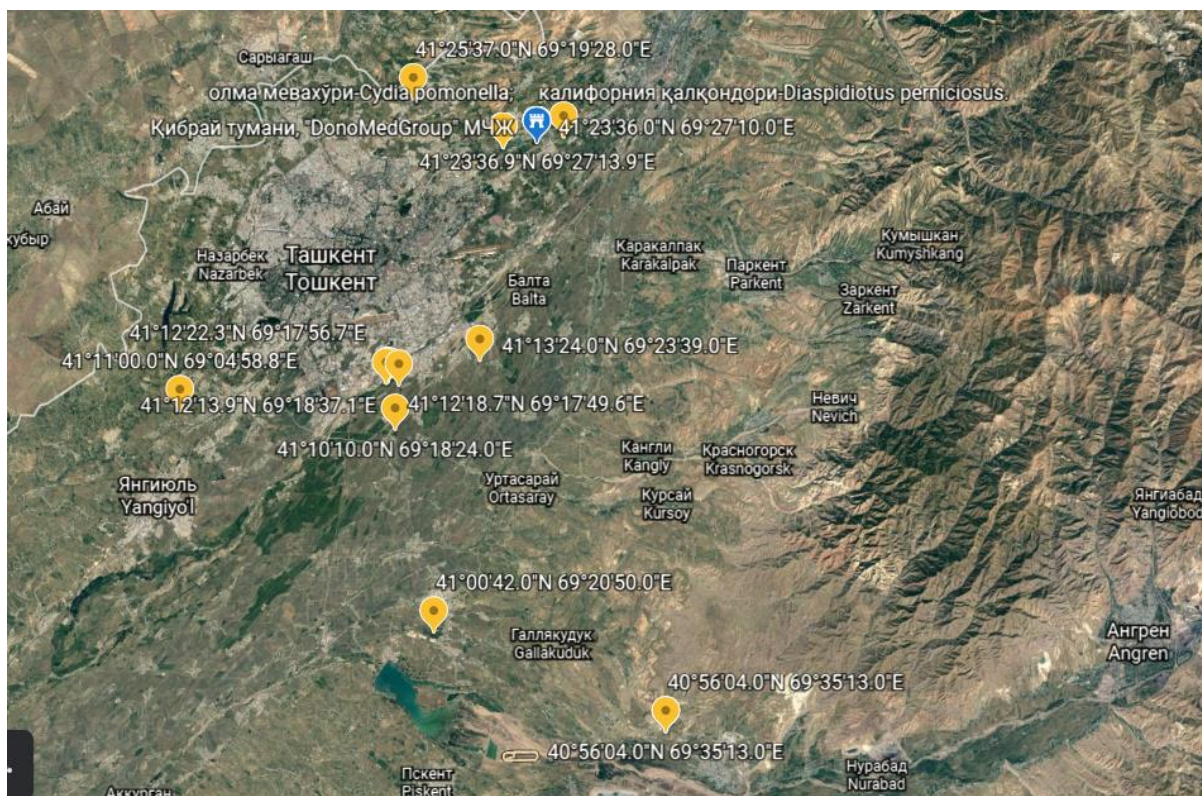


Figure 1. Distribution coordinates of the main representatives of the family Diaspididae in seed orchards.

CONCLUSION

A total of 1 genus Hemiptera, 1 family, 3 genera and 3 species of pests belonging to the class Insecta were recorded in seed orchards from different developmental stages of the identified species.

They were found to be distributed in 3 species of *Lepidosaphes ulmi* (Linnaeus, 1758), *Diaspidiotus perniciosus* (Comstock, 1881) and *Parlatoria oleae* (Colvée, 1880) from the Diaspididae family, and specimens were collected.

The main representatives of the Diaspididae family in seed orchards identified 12 coordinates of pests in apple, quince and pear orchards in order to create a species composition and a GIS map was created.

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Research Article

PEST RISK ANALYSIS IN COMSTOCK MEALYBUG (PSEUDOCOCCUS COMSTOCKI) IN POMEGRANATE AND DATES

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ABSTRACT

Dangerous pest is widespread in Uzbekistan. The most dangerous of these are coccidia. They damage many plants. Damages pomegranate, date, unabi, apple, pear, plum, quince, peach, almond, hawthorn, pine, poplar and other orchards and ornamental trees.

In Uzbekistan, comstock worms reproduce three times a year, and partly for the fourth time. But with the fall of the cold, the fourth generation perishes.

In pomegranate and palm crops, different levels of infestation were observed in different varieties by comstock worms. In pomegranate, 53.8% of Ok dona, 49.5% of Kizil anor, 39.1% of Kozoki anor and 22.8% of Achchik dona were damaged. 38.3% of Zenju-maru, 25.9% Tamopan and 20.1% Xiakume dates were damaged.

KEYWORDS

Orchard, pomegranate, date, damage, phytosanitary risk analysis.

INTRODUCTION

Today, coccidia, which are serious pests of fruit and ornamental plants, cost the agricultural and horticultural sector \$ 5 billion a year. The U.S. dollar is hurting. Accordingly, the identification of harmful coccidial species in fruit and ornamental trees, the development of measures to combat them is of great scientific and practical importance.

Comstock worms infect 300 different plants. Pomegranates, bexies, apples, dates, pears, peaches, as well as mulberries from fruit trees cause severe damage. They form large colonies on the trunk, branches and leaves of the tree and absorb the sap of the tree, drying out its medicine and weakening its growth. In severely damaged trees, swellings appear, young branches dry out and the leaves fall off. Comstock worms penetrate the soil to a depth of 5–6 cm, damaging the flowers, fruits of the plant, and also

sucked the upper part of the roots. Occurs in some cases at depths up to 40 cm. The worms usually feed along the veins in the lower part of the leaf.

Comstock worms cause great damage to mulberry trees. Damaged mulberry leaves turn yellow and fall off into a haze. Mulberry leaves contaminated with Comstock worm waste are considered harmful to silkworms. A cup of pomegranate fruit is useful in the good development of the comstock worm and its eggs and drastically reduces the yield.

As of January 1, 2022, the Agency for Plant Quarantine and Protection of the Republic of Uzbekistan has spread a total of 955.55 worms, causing serious damage.



Figure 1. Pseudococcus comstocki damage to dates and pomegranates

RESEARCH MATERIALS AND METHODS

The study of phytosanitary risk analysis of comstock in the southern regions of Uzbekistan includes its

bioecology, distribution, entomophagous species composition and the process of formation of host-

entomophagous relations, as well as the use of biological control measures to control their numbers.

Entomological calculations and observations by the methods of V.Yakhontov, G.Ya.Bey-Bienko, N.V.Bondarenko, A.A.Zakhvatkin, S.A.Murodov; Application of CAPRA program and D.Orlinsky method in phytosanitary risk analysis; The dominant number of entomophages is based on the methods of KK Fasulati, SN Alimuhamedov. The degree of phytophagous damage is determined by the method of VI Tansky. The quality of entomophages is determined by the method of B.P. Adashkevich, in accordance with the formula of V.S. Abbot in the calculation of biological efficiency control variant in laboratory and field experiments. The obtained results are analyzed mathematically and statistically using the methods of K.Gar, B.A.Dospekhov and G.F.Lakin.

RESEARCH RESULTS AND THEIR DISCUSSION

Research in 2019-2021 Kashkadarya and Surkhandarya regions, Agency for Plant Quarantine and Protection of

the Republic of Uzbekistan, Research Institute of Plant Quarantine and Protection, Department of Plant Quarantine and Protection of Tashkent State Agrarian University and the Institute of Zoology of the Academy of Sciences of Uzbekistan, Theoretical foundations of entomophagous ecology and biology performed in the laboratory.

The main materials were collected from pomegranate and palm orchards of Kashkadarya and Surkhandarya regions in 2019-2021. In the study, the lower, middle, and upper tiers of the plant were examined to determine the prevalence of coccidia, and the coccidia were currently overwintered and at what stage of development they were in the food plant.

In the pomegranate crop, varying degrees of damage was observed in different varieties by the comstock worm. Injury of 53.8% Ok dona, 49.5% Kizil anor, 39.1% Kozoki anor and 22.8% Achchik dona varieties was observed and detected (Figure 2).

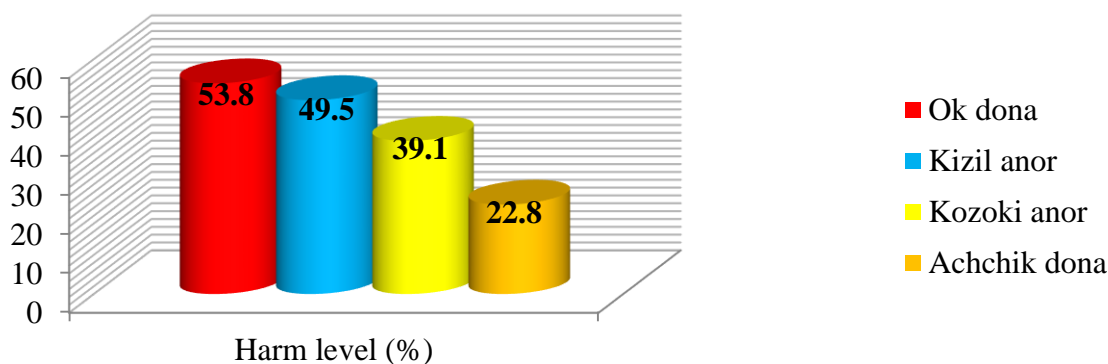


Figure 2. The degree of damage to pomegranate by comstock worms in different varieties (Kashkadarya and Surkhandarya regions, 2019-2021).

In the palm crop, varying degrees of damage was observed in different varieties by the comstock worm.

Injury of 38.3% Zenju-maru, 25.9% Tamopan and 20.1% Xiakume dates was observed and detected (Figure 3).

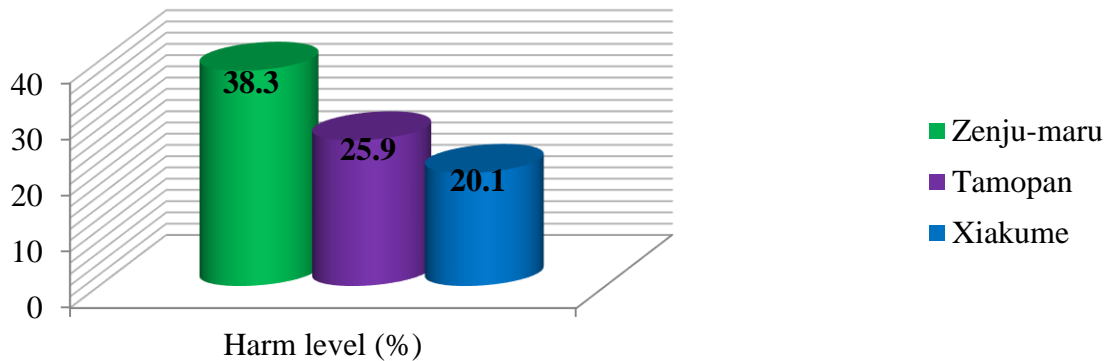


Figure 3. Degree of damage to various varieties by comstock worms in date crops (Kashkadarya and Surkhandarya regions, 2019-2021).

CONCLUSION

As of January 1, 2022, the plant quarantine and protection of the Agency of the Republic of Uzbekistan has spread to a total of 955.55.

In Uzbekistan, comstock worms reproduce three times a year, and partly for the fourth time. But with the fall of the cold, the fourth generation perishes.

In pomegranate and palm crops, different levels of infestation were observed in different varieties by comstock worms. In pomegranate, 53.8% of Ok dona, 49.5% of Kizil anor, 39.1% of Kozoki anor and 22.8% of Achchik dona were damaged. 38.3% of Zenju-maru, 25.9% Tamopan and 20.1% Xiakume dates were damaged.

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Research Article

THE EFFECT OF PLANTING SCHEMES FOR VARIETIES OF HOT CHILI PEPPER ON THE YIELD OF PLANT IN UNHEATED GREENHOUSE CONDITIONS

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ABSTRACT

This article reveals the results of the study on different planting schemes for Margilan 330, Uchkun and Tillarang varieties of hot chili peppers in unheated greenhouse conditions. According to the results of the study, the number of fruits was higher in 70x20 cm reduced variants of planting scheme, while in the variants planted in 70x50 cm scheme, the fruit weight increased even though the number of fruits was less.

KEYWORDS

Hot chili pepper, unheated greenhouse, plant, planting scheme, number of fruits, fruit weight, yield.

INTRODUCTION

Today, 4.6 million hectares of land around the world are planted with hot chili pepper (*Capsicum annum L.*), from which 69.3 million tons are harvested. The average yield is 100-110 tons per hectare in greenhouses and 14.1-18.3 tons per hectare in the open

field. Nowadays, the interest and need for hot chili pepper crop is growing day by day, and this crop is grown in all countries of the world. Although the world average yield of hot chili peppers (*Capsicum annum L.*) increased from “7.3 tons in 2006 to 18.4 tons in 2019 in

open fields and from 80 tons to 110 tons in greenhouses”, the creation of hot pepper varieties resistant to heat and cold, diseases and pests, suitable to grow saline soils is a topical issue today.

In recent years, the research has been conducted worldwide on the creation of varieties of hot chili peppers suitable for growing in unheated greenhouses, with a bitter content of more than 10 points, export-oriented, good fruit quality, yield 80-90 t / ha using innovative methods, and on the development of optimal planting dates and schemes for them in unheated greenhouses. In countries that are leaders in the cultivation of hot peppers, hot chili peppers are the main crop and are widely used in industry and pharmaceuticals. Therefore, the creation of high-yielding varieties suitable for cultivation in unheated greenhouse conditions is an important scientific direction. One of today's urgent tasks is the selection of varieties suitable for cultivation in unheated greenhouses and the development of important elements of cultivation technology, as well as the provision of the population with new and fresh products throughout the year.

RESEARCH METHODS

Greenhouse and laboratory research experiments were conducted based on methodological manuals by V.F. Belik "Methods of experimental work in vegetable growing and horticulture ", B.J. Azimov and B.B. Azimov's "Methods of conducting experiments in vegetable, melons and potatoes growing", Ye.Ya. Glushenko, M.V. Vronina, A.I. Strekalova's "Methodical instructions on the study and support of the world collection of vegetable crops (tomatoes, peppers, eggplants)", "Methodical recommendations on conducting experiments on the vegetable crops in protected soil (SRIVE)", and statistical analyses of the results were performed using B.A. Dospekhov's

method of dispersion analysis with the help of the program Microsoft Excel.

RESEARCH RESULTS

Feeding area or planting scheme has a significant effect on fruit weight and the number of fruits of the hot pepper plant. As the feeding area expanded, so did the weight of the fruit. In the control variant of Margilan 330 variety, the fruit weight was 13.4 grams in the 70 × 30 cm planting scheme, while in the 70 × 20 cm scheme this figure was 9.1 g or 4.3 g lighter than the control. Planting schemes should be determined on the basis of experimental results, taking into account the soil and climatic conditions of the unheated greenhouse, the method of cultivation and the biological characteristics of the plant. Planting distance, that is, too close or too long planting between seedlings also affects plant growth and yield.

When the fruits of Margilan 330 variety technically ripened, the number of fruits per plant was 119 pieces in the control variant planted in the scheme 70 × 30 cm or 100%, in the variant planted in the scheme 70 × 20 cm this figure was 121 pieces which is 2 pieces more than the control variant, i.e 1.7% higher. As the planting schemes increased, the number of fruits was observed to decrease compared to the control option. This pattern was also observed in the varieties "Uchkun" and "Tillarang". Fruit weight showed a contrary indicator, that is, the weight of the fruit increased due to the expansion of the feeding area as the planting schemes increased. In the control variant planted in the 70 × 30 cm planting scheme, the weight of one fruit was 10.4 grams, i.e 100%, while in the 70 × 40 cm scheme 19.7 grams which is 9.3 grams higher than in the control variant, in the 70 × 50 cm scheme 22.6 grams which is 12.2 grams higher than the variant control.

Table-1

Number of fruits, fruit weight and yield indicators of hot chili pepper varieties planted in different planting schemes in unheated greenhouse conditions (in 2018–2020)

Variants	Planting schemes	At maturation of fruits, per plant						Yield	
		Number of fruits		Weight of one fruit		Total weight of fruits			
		pcs	%	g	%	kg	%	kg/m ²	%
Margilan 330									
I	70×20 cm	121	101,7	7,6	73,1	0,9	75,0	6,4	114,3
II	70×30 cm (cont)	119	100,0	10,4	100,0	1,2	100,0	5,6	100,0
III	70×40 cm	116	97,5	19,7	189,4	2,2	183,3	7,7	137,5
IV	70×50 cm	105	88,2	22,6	217,3	2,3	191,7	6,6	117,9
x		115,3	96,8	15,1	145,0	1,7	137,5	6,5	116,1
The least difference 05 kg/m ²								3,2	
Sx,%								4,4	
r=0,91±0,09									
«Uchkun»									
I	70×20 cm	96	104,3	10,0	75,8	1,0	53,3	6,8	119,3
II	70×30 cm (cont)	92	100,0	13,2	100,0	1,8	100,0	5,7	100,0
III	70×40 cm	90	97,8	24,1	182,6	2,1	116,7	7,9	138,6
IV	70×50 cm	88	95,7	28,7	217,4	2,5	138,9	7,1	124,6
x		91,5	99,5	19,0	143,9	1,8	102,2	6,9	120,6
The least difference 05 kg/m ²								3,3	
Sx,%								2,8	
r=0,93±0,07									
«Tillarang»									
I	70×20 cm	89	102,3	10,2	76,7	0,9	81,8	6,4	118,5
II	70×30 cm (cont)	87	100,0	13,3	100,0	1,1	100,0	5,4	100,0
III	70×40 cm	82	94,3	25,1	188,7	2,0	181,8	7,2	133,3
IV	70×50 cm	79	90,8	30,6	230,1	2,4	218,2	6,7	124,1
x		84,3	96,8	19,8	148,9	1,6	145,5	6,4	119,0
The least difference 05 kg/m ²								3,2	
Sx,%								3,1	
r=0,89±0,11									

When the weight of the fruits was analyzed, the weight of the fruits and the quality of the product decreased as the planting schemes decreased. Of course, this figure depended on the plant's absorption of nutrients from the soil. In the control variant planted in the 70 × 30 cm scheme, the yield was 5.6 kg per square meter, while in the variant planted in the 70 × 20 cm scheme, the yield was 6.4 kg, which is 0.8 kg / m² higher than the control variant. Although the yield in this planting scheme was higher than the control option, the commodity yield was lower than the yield in control variant.

The reason for this was that the plant could not provide enough nutrients to the fruits in the variant planted in the 70 × 20 cm scheme. Yield in the variants planted under the schemes 70 × 50 and 70 × 40 cm was 6.6 and 7.7 kg per square meter, i.e. 17.9–37.5% higher than the control variant. The increase in fruit weight was dependent on the feeding area. As the nutritional area of the plant increased, the weight and yield of the commodity fruit increased. Therefore, in the cultivation of hot peppers in unheated greenhouse conditions, it is important to take into account the feeding area of the plant. A large or small feeding area will cause the product quality to be good or bad.

The correlation between the number of fruit per plant and the total weight of fruits at the time of fruits maturation of Margilan 330 variety planted in different planting schemes was strong, $r = 0.91 \pm 0.09$. This pattern is also reflected in the varieties "Uchkun" and "Tillarang". The correlation of the coefficient between the number of fruits in a plant and the total weight of fruits was strong, $r = 0.93 \pm 0.07$, $r = 0.89 \pm 11$, respectively.

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Research Article

DEVELOPMENT OF MARKETABLE PROPERTIES OF PROCESSED LEMON

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ABSTRACT

A well-known citrus plant, very common in the culture of Central Asian countries. Lemons grown in greenhouses, hotbeds. It found wild in Southeast Asia. It is eaten everywhere. The plant, due to its taste, flavoring properties, is widely used in the confectionery, wine and vodka industries. Lemons used in cosmetology. The plant has been used in medical practice since ancient times. In article, the review of literature on medicinal and preventive properties of fruits of a lemon is provided in ancient, modern traditional and scientific medicine. Citrus L, as an evergreen subtropical plant, successfully used in Uzbekistan under protected ground conditions as an industrial crop, and indoors as an ornamental crop, but the success of this crop depends on the variety and cultivation technology.

KEYWORDS

Lemon, cultivation technology, development, useful, health.

INTRODUCTION

Citrus lemon Rissa. A well-known citrus plant, very common in the culture of Central Asian countries. Lemons grown in greenhouses, hotbeds. It found wild in Southeast Asia. It is eaten everywhere. The plant,

due to its taste, flavoring properties, is widely used in the confectionery, wine and vodka industries. Lemons used in cosmetology. The plant used in medical practice since ancient times.

Chemical composition: The plant contains citric acid, sugars, vitamins B1, B2, B3, P, C, coloring matter – hesperidin. In the peel of lemon fruits, an essential oil was determined, consisting of limonene, citral, D-pinene, camphene. Lemon essential oil contains limonene (29.9%), β -pinene (12.0%), sabinene (9.0%), citronellal (9.0%), and citronellal (5.8%). Phenolic substances identified in lemon juice – hesperidin, eriocitrin, chromogenic acid, neoeriocitrin; carotenoids – β -carotene, β kryptoxanthin, lutein, zeaxanthin [4]. Lemon seeds contain essential oil, bitter substance limonin, branches and leaves – essential oil. The bark of the tree contains the glycoside citronine.

All healers of antiquity – Galen, Hippocrates, Avicenna and others – wrote about the healing properties of lemon. The nature of the lemon was determined as cold in the II degree and dry in the I degree. Taking lemon inside cures headaches, dizziness, eliminates hops, treats a hot swelling of the throat, is useful for palpitations, lowers blood pressure, extinguishes the fire of the stomach, removes hot substances from the liver and stomach, and strengthens them. Lemon dissolves, cleanses, tears off thick matter. However, it is harmful to the nerves and with a cold cough. When consumed on an empty stomach, it weakens the intestines and leads to joint pain. It advised to use it with sugar or honey. It should be noted that lemon on an empty stomach leads to insomnia [1].

Lemon juice, when applied externally, treats allergies, cleanses the skin, and is useful for dry skin. Lemon juice is cold in the II degree and balanced in terms of dryness and moisture. It is useful in inflammation of the throat and oral mucosa, in all diseases of children and poisoning. Lemon peel warms the stomach, removes winds and large worms [4].

Lemon seeds are hot in the II degree and dry in the I degree. They are the antidote. However, before use,

they separated from the peel. Salted lemon strengthens the stomach. Lemon oil is useful for paralysis and curvature of the face.

In modern folk medicine, lemons used very widely. Lemon fruits used for colds, flu, low acidity of the stomach, as a diuretic, sedative. Infusion of lemon peel used to remove worms. Lemons are used in the treatment of diabetes, hypertension. Wash the wounds with lemon juice [2].

Women use lemon slices as a harmless contraceptive. In modern scientific medicine, lemons are also widely used. Lemon is an excellent tool for dietary nutrition of patients with hypertension, diabetes. A decoction of the peel used as a diuretic [3]. All parts of the plant, lemon fruit, and its oil have antioxidant properties.

It believed that the consumption of lemon reduces the biological age of men [1]. The lemon diet, a low-calorie diet that consists of a mixture of organic maple and palm syrups and lemon juice for a 7-day abstinence period, reduces visceral fat and insulin resistance through heat restriction and might have a potential beneficial effect on risk factors for cardiovascular disease diseases [2].

Lemon juice has antibacterial properties Lemon-honey suspension (1 part lemon juice + 2 parts honey) is used externally to remove freckles and other skin spots. Lemon juice, when applied externally, kills fungi.

In African countries, it is common for women to washing the perineum with lemon juice. Scientific studies have identified an association between this procedure and the prevalence of cervical dysplasia [3]. Experimental studies have shown that citrus peel limonene has a sedative effect by regulating dopamine synthesis and acting on serotonin receptors. Lemon oil has sedative and antidepressant properties.

Consumption of lemon juice in a normal dose increases blood circulation to the brain, thereby improving cognitive functions [4]. Taking lemon juice with pomegranate juice has an anxiolytic and antidepressant effect. Lemon juice has antioxidant and analgesic properties [2]. Inhalation of lemon oil stimulates the dopamine system, reduces the conduction of pain impulses, providing an analgesic effect. Lemon oil reduces lipid peroxidation in the hippocampus, thereby preventing the development of neurodegenerative diseases. Lemon oil inhibits the enzymes acetylcholinesterase butyrylcholinesterase (HGNC symbol BCHE; EC 3.1.1.8), has a neuroprotective effect. Lemon juice, both in pure form and in combination with pomegranate juice, increases memory capacity, especially short-term memory. Lemon juice, enriched with fruit juices, significantly reduces cognitive impairment during aging. Japanese researchers noted that frequent consumption of citrus fruits was associated with a lower risk of dementia. A mixture of chokeberry and lemon juices has pronounced anticholinesterase properties.

Narirutin, a lemon flavonoid, has the ability to inhibit β -amyloid accumulation and may serve as a therapeutic agent in the treatment of Alzheimer's disease. Tangerine has therapeutic potential in inflammatory and degenerative processes in the nervous tissue, accompanied by microglial activation. Nobility and tangerine flavonoids isolated from the peel and other parts of citrus fruits have neuroprotective effects in vitro and vivo experiments and are promising in the prevention and treatment of Alzheimer's and Parkinson's diseases. Naringin lemon prevents violations of the synthesis of dopamine in the brain, prevents the development of Parkinson's disease.

Randomized, placebo-controlled clinical trials have shown that taking a nasal spray consisting of lemon

and quince has a pronounced anti-allergic effect in patients with allergic rhinitis on plant pollen [3]. Experimental studies have shown that lemon hesperidin effectively prevents oxidative stress and immunological damage in brain cells in experimental autoimmune encephalomyelitis. Lemon oil is used to correct the smell and taste of medicines. Lemon oil has a significant lipolysis effect. Randomized, placebo-controlled clinical trials have shown that lemon flavor is effective in preventing nausea and vomiting in pregnant women.

Due to the high content of polyphenols, lemon peel has an antioxidant, antigenotoxic, antitumor effect [5]. Eriocitrin, a lemon flavonoid, due to its antioxidant properties, stops the spread of hepatocellular carcinoma cells. Extracts of lemon and its seeds prevent the occurrence of breast cancer. Limonoids have the potential to prevent estrogen dependent breast cancer. Citrus limonoids in combination with curcumin prevent the occurrence of colon tumors. Naringenin is a citrus flavonoid with chemopreventive and antitumor properties. A meta-analysis of scientific publications has shown that taking citrus juice, including lemon juice, prevents the development of stomach cancer, bladder cancer.

Lemon essential oil has schistosomacidal impact. Limonoid nomilin has a hypoglycemic effect. Lemon flavonoids have a therapeutic effect in metabolic syndrome. Randomized, placebo controlled trials have shown that taking lemon peel extract reduces systolic pressure, low-density lipoprotein and body mass index in obese children. Experimental studies have shown that the intake of orally, lemon peel extract has therapeutic potential in the treatment of chronic diabetic wounds. Auraptin is the monoterpene coumarin of lemon reduces mean systolic blood pressure in hypertensive rats. Lemon juice and

therapeutic walking significantly reduce blood pressure [3].

Among citrus fruits, anticoagulant properties are shown max for a lemon. The use of garlic with lemon juice leads to the normalization of the concentration of lipids, fibrinogen and blood pressure in patients with hyperlipidemia. Lemon peel, due to its antisecretory properties, effects on intestinal motility has an antidiarrheal effect [1]. Lemon Naringenin Prevents Nerve Damage with a stroke. Neohesperidin from citrus fruits, including lemons, inhibits the process of osteoblast differentiation in ovariectomized rats. Citrus heptamethoxyflavone inhibits the activation of osteoclasts in inflammatory conditions, which can be in the treatment of periodontitis [4]. Lemon peel is effective in the treatment of kidney stones and used to prevent the disease and its recurrence – the use of garlic with lemon juice leads to the normalization of lipids, fibrinogen and blood pressure in patients with hyperlipidemia. Lemon peel, due to its antisecretory properties, effects on intestinal motility has an antidiarrheal effect. Lemon Naringenin Prevents Nerve Damage with a stroke. Neohesperidin from citrus fruits, including lemons, inhibits the process of osteoblast differentiation in ovariectomized rats.

Citrus heptamethoxyflavon inhibits the activation of osteoclasts in inflammatory conditions, which can be in the treatment of periodontitis. Lemon peel is effective in the treatment of kidney stones and used to prevent the disease and its recurrence – Experimental studies have shown that citrus flavonoids and lemon peel extract inhibit the crystallization process in rats with hyperoxaluric conditions.

Lemon essential oil has a cytoprotective effect against damage to cellular structures caused by aspirin. This oil prevents damage to the kidneys and liver by aspirin. Experimental studies have shown that a 50% alcohol

extract of lemon leaves reversibly inhibits spermatogenesis in mice [4]. Lemon lod extract protects the testicular apparatus, intestines and pancreas when taking cyclophosphamide.

Hesperidin prevents damage to the testicular apparatus by the chemotherapy drug cisplatin. Naringenin in citrus fruits, thanks to its antioxidant properties, protects against damage to body cells in case of poisoning with arsenic salts. Lemon juice has no effect on the pharmacokinetics of sildenafil.

Lemon contraindicated in cases of increased acidity of gastric juice, acute kidney disease.

Based on ancient Persian medicine, Tajik researchers determined that the use of acidic foods, including lemon juice, leads to a change in blood pH, urine, glucose tolerance, an increase in blood sugar and the level of the main marker of prediabetes – glycated hemoglobin, which the authors called the term prediabetes.

To combat the tick, the most acceptable biomedicinal: especially phytosailius. They plant it in the foci of infection. It perfectly tolerates significant temperature changes, moreover, it quickly adapts to chemical plant protection products, which sometimes have used in parallel to fight, for example, whiteflies. Of the chemicals, preference given to citcor and aktellik.

At home and in small greenhouses against harmful insects, tobacco dust, garlic, onions, laundry soap used in various combinations and separately.

As a preventive measure, lemon sprayed with a solution of potassium permanganate or Bordeaux liquid.

Thus, in modern scientific medicine, lemon is recommended for dietary nutrition of patients with

cardiovascular diseases, atherosclerosis. Experimental studies have shown that naringenin prevents the development of myocardial hypertrophy in arterial hypertension [1]. Lemon juice increases the membrane fluidity of red blood cells, which is of great importance for the prevention of cardiovascular diseases. Randomized, placebo-controlled studies have shown that drinking lemon juice significantly reduces mean aortic pulse wave velocity.

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