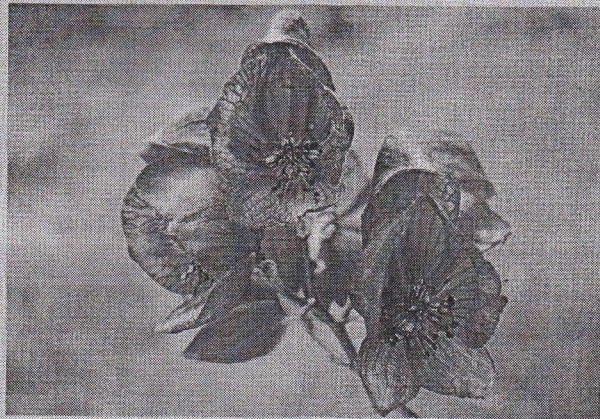


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CARTHAMUS TINCTORIUS L. ЎСИМЛИГИ УРУҒЛАРИНИНГ ҲОСИЛИГА, УЛАРИНИНГ ФИЗИК-КИМЁВИЙ КЎРСАТКИЧЛАРИГА, АЦИЛ-ЛИПИД ДЕСАТУРАЗАЛАРИ ФАОЛЛИГИГА ВА МОЙ КИСЛОТАЛАРИ ТАРКИБИГА МИНЕРАЛ ОЗИҚЛАШТИРИШ ТАЪСИРИ

Мақола *Carthamus tinctorius* L. ўсимлигига минерал ўғитларнинг таъсирини ўрганишга бағишланган. Эски суғориладиган тупроқ - иқлим шароитларида сафлорнинг 4 хил навларига («Галлаорол», «Милютинский-114», «Надир», «Сахро маликаси») минерал ўғитларнинг таъсири ўрганилган. Тажрибалар шуни кўрсатдики, ҳосилдорлиги, мой миқдори, ёғ кислоталар таркиби орасида ҳеч қандай корреляция йўқ.

Р.П.Пирмамедова, Н.К. Юлдашева, Н.Т. Ульченко

ВЛИЯНИЕ МИНЕРАЛЬНОГО ПИТАНИЯ НА УРОЖАЙ СЕМЯН *CARTHAMUS TINCTORIUS* L., ИХ ФИЗИКО-ХИМИЧЕСКИЕ ХАРАКТЕРИСТИКИ, АКТИВНОСТЬ АЦИЛ-ЛИПИДНЫХ ДЕСАТУРАЗ И СОСТАВ ЖИРНЫХ КИСЛОТ СЕМЯН МАСЛА

Статья посвящена влиянию минеральных удобрений на *Carthamus tinctorius* L. Впервые была изучена отзывчивость 4-х сортов сафлора «Галлаорол», «Милютинский-114», «Надир», «Сахро маликаси» на внесение минеральных удобрений в почвенно-климатических условиях староорошаемых типичных серозёмов. Эксперименты показали, что между показателями урожайности, содержания масла, состава жирных кислот не существует никакой корреляции.

R.P. Pirmamedova, N.K. Yuldasheva, N.T. Ul'chenko

THE INFLUENCE OF MINERAL NUTRITION ON THE HARVEST OF *CARTHAMUS TINCTORIUS* L. SEEDS: THEIR PHYSIC-CHEMICAL CHARACTERISTICS, FATTY ACID COMPOSITION AND ACTIVITY OF ACYL-LIPID DESATURASE

In this article we reported the influence of mineral fertilizers to *Carthamus tinctorius* L seeds quality. For the first time, carefully explored the susceptibility of 4 varieties of safflower "Gallaorol", "Milutinsky-114", "Nadir" and "Sahro malikasi" for the application of mineral fertilizers in the soil-climatic conditions of the old irrigated typical sierozems. The experiments showed that there are no correlations between the parameters of harvesting, oil content and composition of fatty acids of the seeds oil.

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SYNTHESIS AND HERBICIDE ACTIVITIES OF HETEROCYCLIC THIOAMIDES

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Plant protection with natural and synthetic preparations (thienopyrimidines, quinazolines, benzimidazoles) is very important for the increasing the efficiency of the agricultural activities [1-4]. In the condi-

tions of modern intensive agriculture, the struggle with weeds is one of the important elements of system of farming [5-7]. In addition to direct harm – reducing yields of agricultural crops and quality of products, weeds indirectly damage the pest and diseases of plants. A serious alternative to the use of herbicides in the control of weeds does not currently exist.

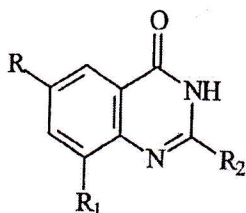
Due to intensive and long-term use of pesticides, especially with one mechanism of action, resistant forms of weed plants develop. Therefore, it is necessary to conduct a constant search of new active substances. The identification of the connection of their chemical structure with the biological activity of the new synthesized compounds is of scientific and practical interest.

Herbicides are widely used in the agro-industrial complex [7]. In this regard, the search for new biologically active compounds that can increase the yield of crops is an important and urgent task of the organic synthesis. Therefore, aim of the current work was the synthesis of substituted quinazoline and benzimidazoles 1-5 and to study of their herbicidal activity.

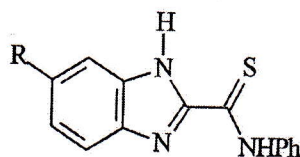
Primary screening for herbicidal activity was carried out in laboratory conditions on sprouts of wheat varieties of *Ghazghon* and cucumbers of Uzbekistan grade by the method of Rakitin Y.V. and Rudin V.E. [8].

Investigation of the herbicidal activity of the heterocyclic thioamides was carried out in laboratory conditions on sprouts of wheat and cucumbers. Control seeds were soaked in water, samples in 0.5% and 0.05% concentration of the test compounds for 18 hours. After the plug, the seeds were spread on filter paper in Petri dishes, moistened with an equal amount of water and germinated for 5 days at the temperature of 20-22°C in a thermostat, after which the germination parameters of the seeds were examined and the length of the roots of the seedlings and the height of the stem part of the plants were measured. As a standard, Gezagard herbicide was used at a rate of 3.0 l/ha or 1.5 g/ha. The preparation is used against annual dicotyledonous and gramineous weeds.

Under the action of 0.05% concentration, the compounds 1 and 2 compound showed greater activity relative to wheat. They reduced seed germination on 50%. Compounds 3-5 reduced germination on 40%. The greatest suppression of sprout growth was observed with the use of compounds 1, 3, and 5. The length of the roots in these variants was below control by 60%, the stem by 50%.



1, R=R₁=R₂=CH₃;
5, R=R₁=H; R₂=C(S)NHPH



2, R=Cl; 3, R=H; 4, R=NO₂

The results of the initial tests with the comparison of Gezagard showed that the compounds in 0.5% concentration showed herbicidal activity and completely suppressed the development of the seeds of both cultures (Table).

The effect of the tested compounds on the germination and growth of seedlings.

Table 1.

Compound	Conc., %	Germination, %							
		Wheat				Cucumbers			
		3 days	7 days	Root length, cm	Stem length, cm	3 days	7 days	Root length, cm	Stem length, cm
Control		100	100	9.66	7.46	100	100	7.46	1.92
1	0,05	52	58	3.5	3.4	83	83	4.36	1.4
2	0,05	54	57	5.3	5.1	53	84	6.6	1.75
3	0,05	52	65	3.86	3.2	64	64	7.8	1.86
4	0,05	63	69	5.34	4.56	76	76	6.8	1.88
5	0,05	62	70	3.06	2.91	30	69	6.65	1.64

In the culture of cucumbers, the lowest germination was observed when the compound 4 was exposed to 0.05% concentration, on third day only 30% of the seeds went up, on fifth day - 69%. On the growth of

sprouts the greatest activity was exerted compound 1 in the same concentration. The length of the root was below the control by 42%, the stem by 29%.

Thus, it was found that on a monocotyledonous plant (wheat), the compounds 1 and 2 possessed the greatest inhibitory activity among the synthesized compounds; they were more inhibited on a dicotyledonous plant (cucumber) compound 5.

Thus, the obtained results prove the perspectives of creating herbicide preparations based on the thioamide compounds.

Experimental

Synthesis of 2,6,8-trimethylquinazolin-4-one (1).

The mixture of 1,6 g (0.01 mol) of N-acetyl-3,4-xylidene, 1.2 g (0.0127 mol) of urethane and 8 g P₂O₅ in 15 mL o-xylidene was stirred for 30 min., then heated up to 120°C (oil bath) with stirring and up to 150°C without stirring for 3 hours. After cooling, reaction mixture was decomposed by 50 mL distilled water and mixture was extracted with 100 mL of benzene. The aqueous part isolated and was treated with NaHCO₃ pH up to 5-6 and then pH up to 8-9 with K₂CO₃. The formed yellow crystals filtered off, washed with water, dried and recrystallized from ethanol, mp 250-252°C, R_f= 0.63 (benzene : methanol - 4:1), yield 1,40g (75%).

Synthesis of 5-chlorobenzimidazol-2-yl thiocarbonic acid anilide (2)

Reaction mixture consisting of 5-chloro-2-methylbenzimidazole, sulfur and aniline, taken in a molar ratio of 1:3:2, was heated at 170-180°C for 10 h, the excess of the aniline distilled off, and residue treated with methanol. Formed crystals filtered off and recrystallized from benzene, mp 262-264°C, R_f=0.62 (benzene:acetone - 3:2).

Synthesis of benzimidazol-2-thiocarboxylic acid anilide (3)

Reaction mixture consisting of 2-methylbenzimidazole, sulfur and aniline, taken in a molar ratio of 1:3:2, was heated at 170-180°C for 18 h, the excess of the aniline distilled off, and residue treated with methanol. Formed crystals filtered off and recrystallized from benzene, mp 274-276°C, R_f=0.86 (benzene:acetone - 3:2).

Synthesis of 5-nitrobenzimidazol-2-thiocarboxylic acid anilide (4)

Reaction mixture consisting of 5-nitro-2-methylbenzimidazole, sulfur and aniline, taken in a molar ratio of 1:3:2, was heated at 170-180°C for 8 h, the excess of the aniline distilled off, and residue treated with methanol. Formed crystals filtered off and recrystallized from benzene, mp 245-247°C, R_f=0.22 (benzene:acetone - 3:2).

Synthesis of quinazolone-2-thiocarboxylic acid anilide (5)

Reaction mixture consisting of 2-methylquinazolone, sulfur and aniline, taken in a molar ratio of 1:3:2, was heated at 170-180°C for 15 h, the excess of the aniline distilled off, and residue treated with methanol. Formed crystals filtered off and recrystallized from benzene, mp 259-261°C, R_f=0.85 (benzene:acetone - 1:1).

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ГЕТЕРОЦИКЛИК ТИОАМИДЛАР СИНТЕЗИ ВА ГЕРБИЦИД ФАОЛЛИГИ

Алмашинган хиназолинлар (1, 5) ва бензимидазоллар (2-4) синтез қилинган ва уларнинг гербицид фаоллиги буғдой ва бодрингда ўрганилган. Синтез қилинган моддалар орасида 1, 3 ва 5 бир паллали (буғдой) ва икки паллали (бодринг) ўсимликларга нисбатан юқори ингибирловчи фаолликни намоён қилган.

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СИНТЕЗ И ГЕРБИЦИДНАЯ АКТИВНОСТЬ ГЕТЕРОЦИКЛИЧЕСКИХ ТИОАМИДОВ

Синтезированы замещенные хиनाзолины (1, 5) и бензимидазолы (2-4) и изучены их гербицидные активности на пшенице и огурцах. Обнаружено, что среди синтезированных соединений 1, 3 и 5 показывают сравнительно высокую ингибирующую активность относительно к однодольным (пшеница) и двудольным (огурцы) растениям.

U.M. Yakubov, R.P. Zakirova, D.A. Nasimova, N.B. Pirnazarova, B.Zh. Elmuradov

SYNTHESIS AND HERBICIDE ACTIVITIES OF HETEROCYCLIC THIOAMIDES

The substituted quinazolines (1, 5) and benzimidazoles (2-4) have been synthesized and their herbicidal activities on wheat and cucumber have been studied. It was found that among the synthesized compounds 1, 3 and 5 possessed the greatest inhibitory activity relative to monocotyledonous (wheat) and dicotyledonous (cucumber) plants.

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SYNTHETIC OLIGONUCLEOTIDES FOR THE DETERMINATION OF HCV RNA IN HUMAN BLOOD BY RT – PCR

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Viral Hepatitis C is one of the most widespread viruses, leading to a significant deterioration in the quality of life of the patient. More than 200 million people in the world are infected with HCV, in most patients the acute form of Hepatitis C passes into the chronic form of HCV. This can lead to cirrhosis of the liver, hepatic damage or hepatocellular carcinoma, which are responsible for more than 100 thousand deaths each year. In the treatment of this disease, it is very important to determine the quantitative content of the virus in the patient's blood at each stage of treatment. For this reason, the creation of a domestic test system for the quantitative determination of Viral Hepatitis C by the PCR method is topical. Despite the fact that Hepatitis C was discovered more than 28 years ago, our knowledge of the life cycle of HCV is limited by the inability to grow the virus in the cell culture, as well as the shortcomings of small animal models infected with HCV [1-5].

The hepatitis C virus consists of a single-stranded RNA with a positive chain. It is classified from the *Flaviviridae* family. *Flaviviridae* includes 4 genera: Flavivirus, Pest virus, Hepacivirus and unclassifiable viruses. In addition to HCV, the *Flaviviridae* family includes the yellow fever virus, tick-borne encephalitis virus, Japanese encephalitis virus, chronic fever virus. HCV, together with newly discovered HGV / GBV - A, B and HGV / GBV - C viruses, are the only members of the genus Hepacivirus. The HCV chain shows a greater degree of genetic heterogeneity. HCV is classified into 6 main genotypes, which are further subdivided into subtypes [6-8].

The aim of this work is developing the domestic PCR assay for detection of HCV in patients' plasma.

In this study we describe the development of a PCR assay for detection HCV viruses in plasma samples. In order to design primers, a multiple alignment was performed and the most conserved region were selected. Based on the inspection of other interfering factors, like DNA extracted from human samples and viruses transmitted by blood, it was shown that the designed primers are capable for detecting HCV and there is no cross reaction with other viruses. In order to determine the sensitivity, samples from HCV infected patients with known copy number were used.