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USE OF BIOLOGICALLY ACTIVE ORGANIC COMPOUNDS IN AGRICULTURE AND METHODS OF THEIR SYNTHESIS

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ABSTRACT

This article provides information on pesticides, herbicides, fungicides, insecticides, nematocides, acaricides, bactericides, growth accelerators in agriculture and the search for new compounds, the development and implementation of technologies for their production, and the use of them in agriculture. listed.

KEYWORDS: *pesticides, pesticide classification, insecticides, fungicides, herbicides, growth agents, insecticides, defoliants.*

Advances in chemistry are aimed at increasing agricultural production and further increasing productivity. Successful solution of this task depends in many respects on increasing land productivity, proper organization of the fight against waste of agricultural products. Agricultural products are wasted in large quantities due to weeds, pests and diseases of cultivated plants. Weeds take moisture from cultivated plants, nutrients from the soil, squeeze crops and inhibit their growth.

Agricultural plant pests include insects, canals, roundworms, mollusks, rodents, and more. Insects absorb their sap, along with damaging plant tissue; roundworms (nematodes) penetrate the plant and erode their tissue, while rodents gnaw on the surface and underground parts of the plant.

Fungi, bacteria and viruses live in plants as parasites, disrupting their normal nutrition, causing some parts of the plant to rot and die, and the whole plant to wither. Pests and pathogens that fall on cultivated plants reduce the productivity of agricultural crops and cause enormous economic damage to the state. For example, infestation of wheat with only one buckwheat reduces the yield by 30-50%. Thus, there are currently more than 70,000 pests in the world. Due to this, various chemical compounds that have the property of stopping the growth or killing of insects, canals, rodents, bacteria, viruses, fungi, weeds and other pests in agricultural crops are called pesticides. Pesticides can be classified according to their chemical composition and the purpose for which they are used.

1. Herbicides — chemicals used to control weeds.
2. Insecticides — chemicals used to kill harmful insects.
3. Fungicides are chemicals used against plant diseases.
4. Plant growth agents are chemicals that affect the growth of plants.
5. Insect repellents - chemicals that protect against insect attacks.
6. Insectoactractors - chemicals that attract insects.

7. Chemocerilizers - chemicals that prevent the growth of harmful organisms. Today, most carbamates have active biological effects and exhibit good insecticidal and herbicidal properties. The most widely used herbicides against annual weeds are carbamic acid IFK ester, chlorine-IFK, carbine (barban):

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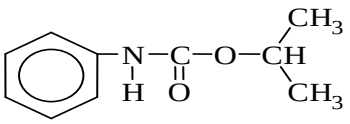
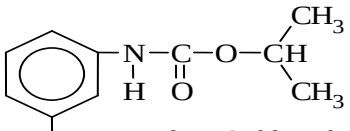
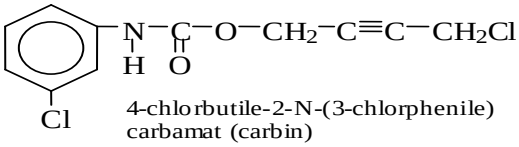


Isopropile-N-phenile carbamat (IFK)



Isoprpile-N-3-chlorophenile carbamat (chlor IFK)



4-chlorbutile-2-N-(3-chlorphenile) carbamat (carbin)

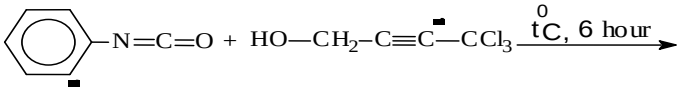
In acetone, in the presence of $(C_2H_5)_3N$, 3,5-$(C_2H_5)_2C_6H_3$-OH is reacted with CH_3-N=C=O, and 3,5-$(C_2H_5)_2C_6H_3$-$OCONHCH_3$ is obtained with 84.5% yield. The product is an insecticide, for example, at a concentration of 2.5 mg / l has an effective effect against "drisophila melanog aster" [1].

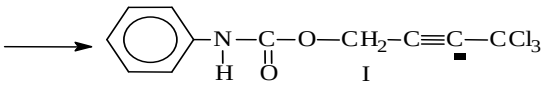
The compound Ar-OC(O)NH-CH_2-CH=CH_2, obtained by reaction of the corresponding phenol with isocyanate, exhibits insecticidal activity and has the ability to have an energetic effect on N-methylcarbamate and organophosphorus compounds [2].

A compound with the formula 3-(2-CI-4-$CF_3C_6H_3O)C_6H_4OCONHR$ (where R = H, alkyl, Ph, haloidphenyl) reacts 3- (2-chlorine-4-triftormethyl phenoxy) phenol with CH^3-N = C = O as a result of the effect is obtained with a yield of 57%. The reaction products have a herbicide effect when applied initially and after weeding against poultry millet and large-leaved weeds.

$X_nYC_6H_{4n}N$=C=O with R-SH, in inert solvents in the presence of tertiary amines at a temperature of -30-150^{0}C, the yield is obtained by 64%. 0.5–1 kg of nuts destroy many weeds without damaging the wheat.

German scientists [3] synthesized esters and carbamates in order to study the dependence of pesticide activity on the structural structure.





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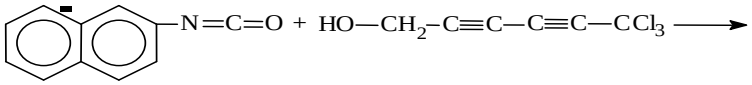

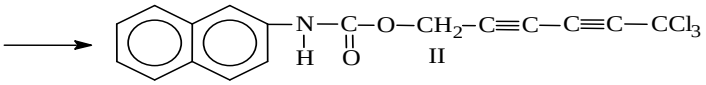

II

The synthesized carbamates have a herbicide effect that is far superior to that of CCI_3COOH. Drugs I and II also have fungicidal and insecticidal activity. Compound I is an insecticide and is widely used in agriculture.

Carbamate derivatives are offered without formula I. (R^1-alkyl); used as an active ingredient in fungicidal compositions.

A number of synthetic methods for obtaining cyclic sulfamyl carbamates and urea have also been developed. These pathways are used for 3-component condensation, alkylation of Mitsunob, and targeted synthesis of S-heterocyclic compounds with 9–11 ring members using a Grubbs catalyst [4].

This work is devoted to methods of synthesis of aliphatic carbamates based on the alcoholism of symmetric dialkyl urea. The process was performed on N, N^1-dibutyl urea, which was re-assimilated urea:

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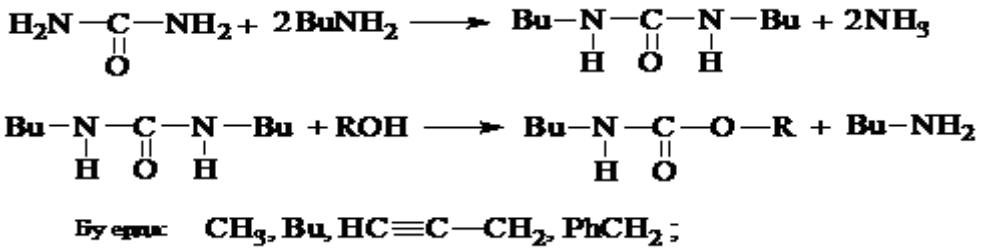
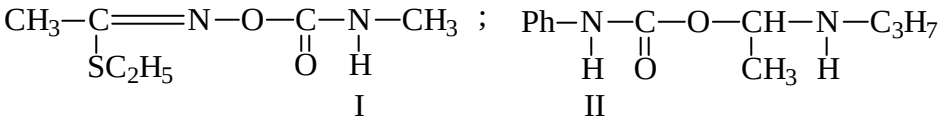


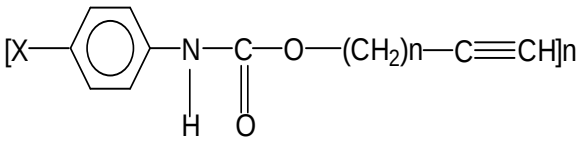
This method is described in the patent literature, but the conditions of the process, methods of separation of reaction products and thermodynamic interactions are not given. The conditions of re-assurance in two stages: in solvents and in urea liquids have also been studied. As a result, the temperature limit of the reaction was studied. It has been shown that the optimum temperature for reassurance is in the range of 140-160^{0}C. It was found that the synthesis of N, N^1-dibutyl urea can be carried out both periodically and continuously. Compounds with formulas I and II were synthesized.



Structures I and II were confirmed by IR-, PMR-spectra, and element analysis data. The biological activity shows that the results of the studied test show that while I exhibits insecticidal properties, II exhibits herbicide effect.

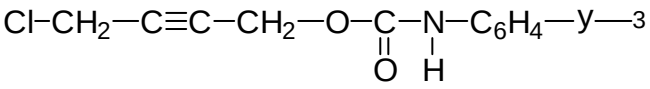
Emulsion extraction of isoprenoids in plant raw materials and the use of pulsation technology for the production of substances with regulatory properties have been demonstrated. Polyene alcohols, a substance that carries the function of transporting hydrophilic particles through the cell membrane, have been isolated. These substances serve as the basis for the creation of substances that have a wide range of effects against fast-healing viruses. Triterpenic acid was isolated from pine leaf litter. Na, K, Cu- salts of these acids were obtained and preparations were made on their basis.

Compounds with the following formula used as an active ingredient in the herbicide composition are proposed.



11 compounds with the following formula were synthesized by the authors, between these carbamate groups and between the benzene ring , between systems of tertiary bonds of X=N, NO_2, CH_3O-, $N(CH_2)_2$ different electronic nature , (n=3,6,7,9) are available. Primary acetylene carbamates were obtained from n-x- n-x-C_6H_4-N=C=O ва $HC{\equiv}C(CH_2)_nOH$ in TGF in the presence of $Bu_2Sn[OOCCEtH\text{-}Bu]_2$ and Et_3N.

The American patent [5] cites in the study the general formula of active compounds as selective herbicides:



Compared to the control, the effect on tomato root system growth was 170.7% and 148.8%, while the effect on body growth was 156.1% and 138.8%, respectively. The effect of a similar drug XM-1 hexamethylene-bis [(methyloilo) carbamate] on tomato body growth was 127.6% in 0.001% league and 134.2% in root growth.

The drug XM-2 hexamethylene-bis [(ethanoilo-carbamate], when tested in tomatoes, had an effect on root and body growth of 125.9% and 127.6% at 0.01%, and 0.001% at 134.2 and 127, respectively. , 6%.
XM-4 accounted for 163.4% of root growth at 0.1%, XM-6 accounted for 148.8% of root growth at 0.001%, and body growth at 130.1%.

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The table shows that the biostimulatory properties of the drugs showed high effects, despite the fact that they are much more diluted than the drug currently used in agriculture [7].

In summary, the systematic testing of biopreparations, seed processing, the use in agriculture of biologically active organic compounds that regulate growth when sown in plants during the growing season, and methods of their synthesis, as well as the severity of the ecological situation, the development of bioregulators.

REFERENCES

1. *Oily Joel, Ambush Jean-Louis. On the same path of selective polucheniya N-alkyl- N-nitrosomochevin // J. Euro. Med. Chem. -1998. №3. -P. 211-213.*
2. *Moszczynski Wicslaw. Pesticide activity of arilovyx ethers N-alkylcarbamic acid.- Pranauk :. Ingot. Organ. 2005. P -53-58.*
3. *Sitoris V., Sunak J., Cipinova H. The acquisition of ethyline ethers and carbamates in the study of pesticides // Shem. Zvesti. 2011. 23. № 1. - P. 41-52.*
4. *Synthesis of cyclic sulfamylcarbamates and urea cherez metathesis with zamыkaniem cycle. // Douhery Joseph M., Jimenes Mari, Hanson Paul R. Tetrahedron. - 2015. - 61.- № 26. - P. 6218-6230.*
5. *85. Patent SSHA, MPK7 №209 / 82. Carbamate inhibitors of the Caspian Sea and their application / Bebbington David, Knegtel Ronald, Mortimore Michael, Kay David, Golec Julian M.C.// Referatnye ximicheskiy journal.- 2004. №2. - P. 254.*
6. *6.Maxsumov A.G., Xatamova M.S., Ataxadjaeva M.A. Technology of production of hexamethylene bis [(methyloyl) -carbamate] and ego chemical properties // Control and management of chemical technology.- Tashkent, 2012.- №2.-B. 22-28.*
7. *7.Khatamova M.S., Maxsumov A.G. Bezotkhodnaya technology polucheniya rostostimulyatora rasteniy bis-karbamata // Ximicheskaya technology.- Moscow, 2012. Tom1. – P.192-193.*