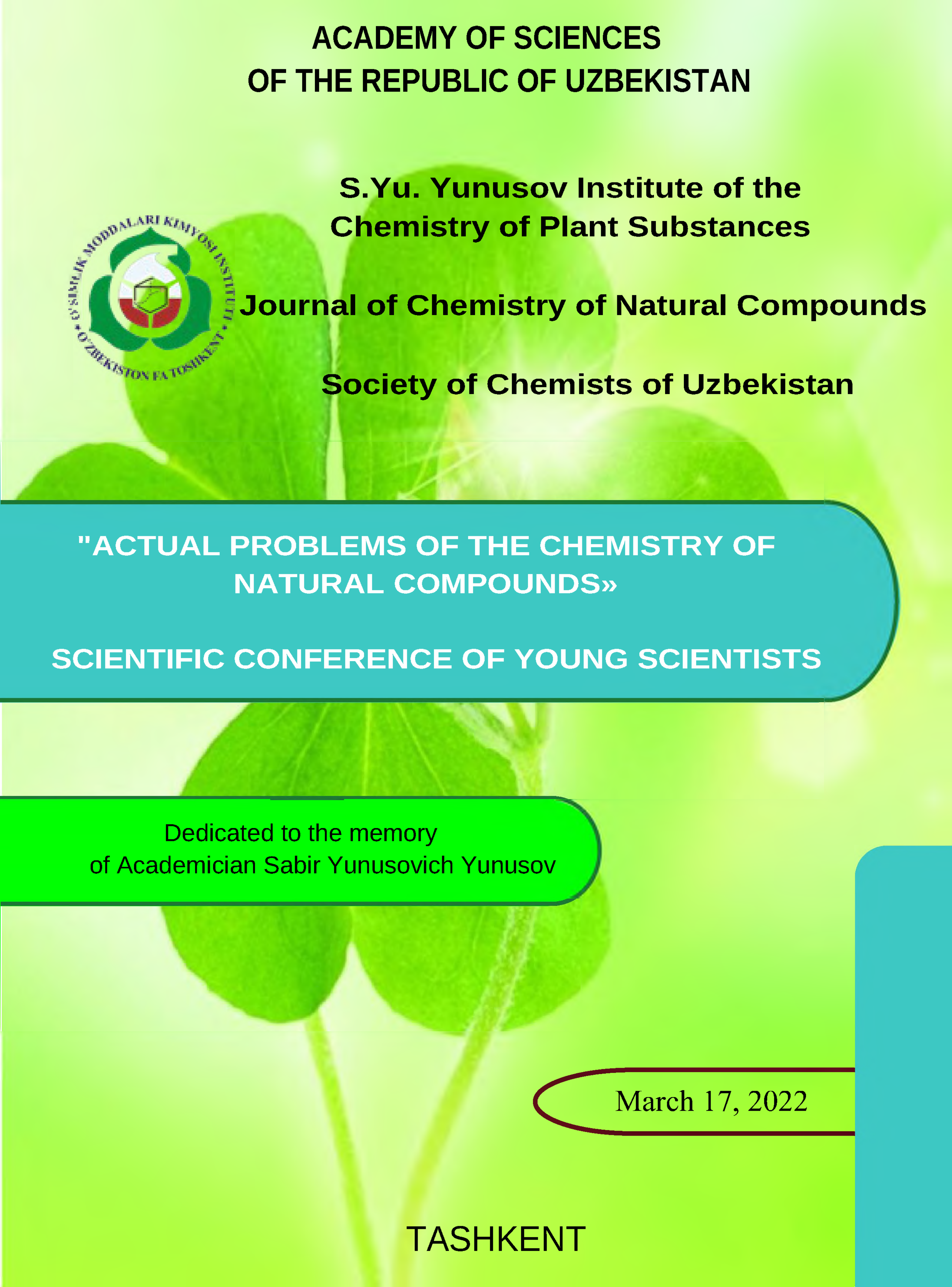

ACADEMY OF SCIENCES
OF THE REPUBLIC OF UZBEKISTAN

**S.Yu. Yunusov Institute of the Chemistry of Plant Substances**

**Journal of Chemistry of Natural Compounds**

**Society of Chemists of Uzbekistan**

# "ACTUAL PROBLEMS OF THE CHEMISTRY OF NATURAL COMPOUNDS»

## SCIENTIFIC CONFERENCE OF YOUNG SCIENTISTS

Dedicated to the memory
of Academician Sabir Yunusovich Yunusov

March 17, 2022

TASHKENT

**ACADEMICIAN**
**SABIR YUNUSOVICH YUNUSOV**
**(1909-1995)**

## Topics OF CONFERENCE

1. Chemistry, technology and pharmacology of natural compounds.
2. Biotechnology and organic chemistry.

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Acad. S.Yu.Yunusov Institute of the Chemistry of Plant Substances,
77, Mirzo-Ulugbek Str., Tashkent, 100170, Uzbekistan

## 17 March

8.00–9.00 **Registration of the participants of the Conference**
(Acad. S.Yu. Yunusov Institute of the Chemistry of Plant Substances, Tashkent, M. Ulugbek st., 77)

9.00–9.10 **OPENING CEREMONY**
**Welcome speech of director of the Institute of the Chemistry of Plant Substances**
**Prof. Sh. Sh. Sagdullaev**

9.10–10:00 **MEMORIES OF THE LIFE AND SCIENTIFIC ACTIVITY OF ACADEMICIAN S.YU. YUNUSOV**
**Doc. S.Z. Nishanbaev**

## ORAL PRESENTATIONS

**Chairmen:** Prof. Batirov E.Kh.
**Secretary:** Turaeva S.M.

10.00–10.15 **B.S. Okhundedaev** Flavonoids of plants of the genus *Artemisia*. Flavones and sesquiterpene lactone from A*rtemisia juncea.*
10.15–10.30 **A.U. Ubaydullaev.** Electrophilic exchange reactions of the quinoline alkaloid haplopyhilidine
10.30–10.45 **U.B. Khamidova.** 5-amino-1,3,4-thiadiazolthion derivatives as potential anti-cancer agents
10.45–11.00 **N.K.Usmanova**. Chemical components of the medical plant *Melilotus officinalis*
11.00–11.15 **L. Kozinskaya.** Mechanism of the formation of indolcrown ethers by the bartoli-grignard reaction
11.15–11.30 **D.Z. Azizov.** Structure and biological activity of arabinogalactans of Ferula kuhistanica and *Ferula tenuisecta*
11.30–11.45 **A.U.Berdiev.** Synthesis of 4-substituted-5,6-polymethylenethieno [2,3- d]pyrimidines
12.00–12.15 **Z.F.Nuriddinov.** Study of Separation Conditions and Biological Evaluation of Natural Compounds from Echis carinatus Snake Venom
12.15–12.30 **Sh.Sh. Khusenova.** Determination of the quantity of the total flavonoids in dry diabderm extract.
12.30-12.45 **Q.G. Khajibayev.** The study of the amount of organic elements in the cyst of Artemia of the Aral Sea
12.45-13.00 **M.E. Ziyadullaev.** N-(4-oxo-3,4-dihydroquinazolin-6-yl) acetamide synthesis and biological activity
13.00–14.00 **Break and POSTER PRESENTATIONS**

## ORAL PRESENTATIONS

**Chairmen:** prof. Rakhmanberdieva R.K.
**Secretary:** Siddikov D.R.

14.00–14.15 **A.Sh. Yashinov.** HIV-RT Inhibiting Peptides of the *Bufo viridis* Toad Venom

14.30–14.45 **A.R. Khurramov.** Gracillin and 5-α-hydroxylaxogenin from the *Saponaria officinalis*

15.00–15.15 **S.M.Allabergenova.** Synthesis of 2-ethyl-3-methyl(ethyl) quinazoline-4-one sulphoamides

15.15–15.30 **A.A. Makhnyov.** Modern principles for the isolation of nucleic acids from biological samples

15.30–15.45 **Z.Sh.Mukhidova.** Pesticide activity of natural terpenoids

15.45–16.00 **A.A. Siddikova.** Pectin substances of *Scutellaria comosa* and their anti-ulcer activity.

16.00–16.15 **M.U.Turanazarov.** Isolation and Purification of a novel peptide from the Buthus eupeus venom

16.15–16.30 **U.Yu. Yusupova.** Biological active compounds from aerial part of *Silene tomentella.*

16.30–16.45 **S.S. Ziyavitdenova** Study of anticancer activity of decoglitz preparation on solid ehrlich tumor

**16.45–17.00 AWARDS CEREMONY**

# STUDY OF MORPHOLOGICAL CHANGES IN RICE STARCH DURING OXIDATION PROCESS WITH SODIUM HYPOCHLORITE

M.S. Sharipov, Sh.Sh. Ortiqov, Z.Z. Sayfiyev
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The relevance of the search for new ways of chemical and physical modification of starch in order to improve the technological properties and reduce the consumption of raw materials is due to the wide use of this natural polysaccharide in various industries. The efficiency of starch and its derivatives using in industry differs from many factors, and in particular, the state of starch granules, fractional composition, their molecular weight and solubility, the presence of non-carbohydrate impurities that change during chemical processing. In this connection researches on studying of there have been carried out and we have studied morphological changing of granules of rice starch in oxidation by NaClO which produce by OAO «Navoiazot».

The morphological characteristics of the starch samples were observed using a JSM-6390 scanning electron microscope (NTC, Japan) at 15 kV. The results show that the very noticeable and serious damage to starch grains doesn't occur during process used in the experiment (Fig. 1).

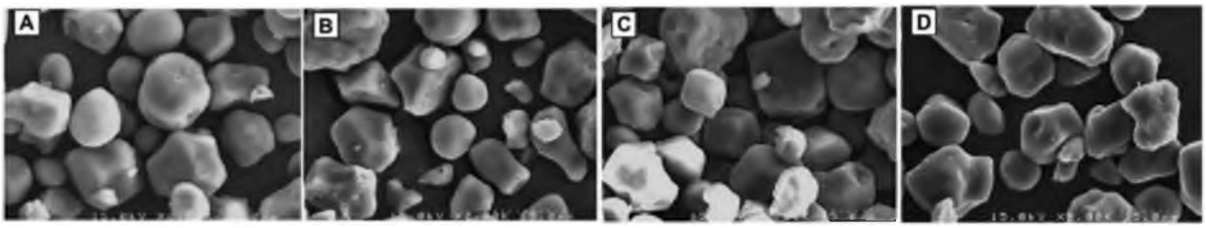

Fig.1. Electron micrographs of granules of native (A) and oxidized (B–D) rice starch (c = 40%) (with the introduction of quantity of the C(NaClO) – 0.01% (B – in 30°C), 0.015% (C – in 35°C) and 0.02% (D – in 45°C) to dry weight of the starch, medium pH=8-9, was adjusting by NaOH)

The granules of the oxidized starches were more delicate in appearance, which is probably due to the lower viscosity and hence the low molecular weight of the oxidized starches. Micrograph analysis of oxidized starches does not explain differences in digestibility.

The activating effect of the oxidizing agent is confirmed by microscopic observations, it can be seen that as the concentration of the oxidizing agent in the solution and the temperature of the reaction mixture increase, the starch grains undergo more and more changes, they gradually lose their spherical shape, depressions, folds, and breaks appear, also develop in them.

The obtained micrographs of samples of oxidized starch make it possible to detect changes on the surface of the starch granules, which cannot be avoided in any modification process with potentially strong oxidizing agents such as NaClO.

# STRUCTURE OF ACYLHYDRASONES OF FERROCENE

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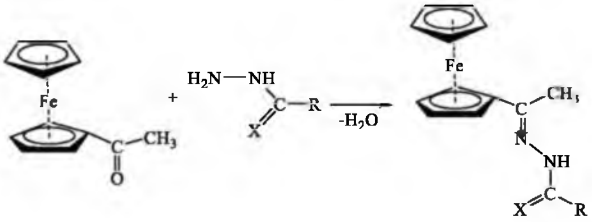
To expand the line of bidentate chelating ligand systeme containing ferrocene fragments, we synthesized hydrazonts of acetic, benzoic, phenilacetic acids and thiosemicarbazide new ligands HL1- HL4 by condensation of acetylferrocene. For hydrazones of monocarbonyl derivates of ferrocene, at the theoretical level, it is quite probable that there are 8 isomeric forms with different locations of two substituents of the ketone part relative to the C=N bond and the acylhydrazone part relative to the N–N bond, for example, the N–N bond and the amide considered partly double. This behavior of the ligand molecule is due to the π-p-π conjugation system, which includes C=N and C=O bonds and the lone pair of electrons of electrons of the N atom and the planar location of the substituents of the acylhydrazone moiety. We have studied condensation reactions and tautomeric behavior of the reaction products of monocarboxylic acid hydrazides with monoacetylferrocene (MAF):



X=O: R=CH3 (HL1), C6H5 (HL2), C6H5-CH2 (HL3). X=S, R=NH2 (HL4).

We have determined that hydrazones of monocarbonyl compounds predominantly exist in the form of a hydrazone form of a hydrazone form and, in the process of complex formation, react in the enhydrazine – □-oxyazine form. In the IR spectrum of all ligands, absorption bands were registered, assignd to □s and □as vibrations of N–N, N–H, C=N and C–N, bonds near 1025-1035, 3215-3225, 1630-1645 and 1285-1290 см–1.

The structure of the synthesized compounds in solution was established by 1H NMR. In the spectrum of HL2 in a solution of ДМСО-d6+CCl4, a singlet signal at δ 1,88 ppm, assigned to the protons of the CH3. A signal with an intensity of one proton in a field (δ 10,20 ppm) is related to the N-H proton, and the protons of the phenyl group with a total intensity of five protons resonate in the form of a multiplet centered at 7,45 and 7,74 ppm. The shape of the spectrum does not change with time, indicating that in this solvent there are no likely tautomeric transitions to the linear enhydrazine and cyclic 5-hydroxypyrazoline forms.

Босишга рухсат этилди 15.03.2022 й.
Қоғоз бичими 60x84 1/18. Адади 50 нусха.
Буюртма 05/22 .ЎзР ФА ЎМКИ
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