

**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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## 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 *Artemisia juncea*.
- 10.15–10.30 **A.U. Ubaydullaev.** Electrophilic exchange reactions of the  
quinoline alkaloid haplopyhilidme
- 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  
arabimogalactans 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**

# **SYNTHESIS OF COMPOSITE ION EXCHANGER BASED ON N-VINYLMORPHOLINE AND ACRYLIC ACID**

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To date, efficient and economical methods for the separation of rare and non-ferrous metals based on the use of nitrogen-fixing sorbents are being developed and put into practice. High sorption activity is exhibited by ion-exchange and complex-forming sorbents that retain various electron pairs of nitrogen, phosphorus, and sulfur reserve groups: aliphatic and aromatic amino groups, pyridine, pyrazole, and other components. The sorption capacity of such sorbents depends on a number of factors, in particular, on the number and nature of functional groups, the nature of the sorbed ion, and sorption conditions.

The process of copolymerization of N-vinylmorpholine (N-VM) and acrylic acid (AA) has been performed in DMFA in various molar ratios (Table 1) for 6 hours at 60°C in the presence of the DAA initiator. The process of radical copolymerization occurs due to the vinyl groups. The resulting copolymer has been precipitated twice and dried in vacuo to obtain a homogeneous mass.

The resulting white powdered copolymer is soluble in solvents such as alcohol, DMFA (dimethylformamide), DMSO (dimethyl sulfoxide).

To obtain a composite sorption material, the originally obtained copolymer N-VM and AA has been dissolved in ethyl alcohol at room temperature and heated with the addition of colloidal silicon. In this case, the crystallization process proceeds with the transition of the copolymer and colloidal siliconol from the sol state to the gel state, and the process ends with precipitation. The resulting solid compositional sorption material has been washed with distilled water and dried in a drying cabinet to obtain a constant mass.

The synthesized sorbents are characterized by good sorption capacity for nickel, palladium and platinum.

The influence of the concentration of monomers on the reaction of radical copolymerization of N-HM and AA in the presence of AA has been studied. From the results obtained, it has been found that the optimal concentration for the copolymerization reaction of N-HMI AA under constant conditions is 0.9:0.1.

It has also been found that sorption in a 1 molar solution of hydrochloric acid at 60°C reaches a maximum after 95-100 min and that the synthesized composite ion exchanger can be used.