

# 5. INTERNATIONAL HARRAN CONGRESS ON SCIENTIFIC RESEARCH

*December 8-10, 2023 Şanlıurfa, TÜRKİYE*

## CONGRESS PROGRAM



Meeting ID: 833 4101 6484

Passcode: 080908

<https://us02web.zoom.us/j/83341016484?pwd=RGhWSUViazMzMjhncUtXYzVQMnBLZz09>

### **Participant Countries: (29)**

*Türkiye, ABD, Algeria, Azerbaijan, Brazil, Bulgaria, China, Morocco, Philippines, India, Indonesia, Iraq, Iran, Spain, Cambodia, Lebanon, Hungary, Malaysia, Nigeria, Pakistan, Romania, Saudi Arabia, Sri Lanka, Taiwan, Tunisia, Ukraine, Uzbekistan, Vietnam, Afghanistan*

**Date: 08.12.2023**  
**Ankara Time: 12:<sup>30</sup>-14:<sup>30</sup>**  
**Session-2 / Hall-5**

**Head of Session:**  
**Kovtun David**

Prerna Pravin Pitrubhakta Vaishnavi Arjun Waghmare Vasudha Chandrashekhar Patil	<i>College Nashik</i>	IMPACT OF CLIMATE CHANGE ON INDIAN AGRICULTURE SECTOR
Phani Kumar V. Subhashish Dey	<i>Gudlavallera Engineering College</i>	INFLUENCE OF BIO-ENZYME ON STRENGTH CHARACTERISTICS OF SOIL
Stanislav Dushkin	<i>National University</i>	STUDY OF THE DYNAMICS OF ION EXCHANGE PROCESSES DURING WATER PURIFICATION
Rummana Khan Sherwani Abdul Waheed Saima Gulzar	<i>University of Management</i>	TRADITIONAL COURTYARD PLANNING IS THE SOLUTION FOR ENERGY EFFICIENCY HOUSING
Mouad lazrak Ghita ait baddi Bouchra chebli Btissam mouria Rabha Aissa	<i>Ibu Zohr University</i>	TREATMENT AND AGRONOMIC RECOVERY OF AGADIR'S WEEKLY SOUKS WASTE BY COMPOSTING IN A BIOREACTOR
Kovtun David	<i>National University</i>	IMPROVEMENT OF THE EXTRACTION PROCESS OF PRECIOUS SUBSTANCES USING ION-EXCHANGE RESINS
VIGNESH K Murugan Shanthakumar	<i>Annamalai University</i>	SURVEY ON THE INCIDENCE OF POWDERY MILDEW OF RIDGED GOURD INCITED BY <i>Erysiphe cichoracearum</i> IN MAJOR RIDGED GOURD GROWING AREAS OF CUDDALORE DISTRICT
Zaid Imad Hameed Zainy Amera Mohamed Alrubeii Hamza AL-Khuza	<i>University of Kufa University of Baghdad</i>	EVALUATION SAUSAGE PREPARED WITH BEETROOT AND CAMEL THISTLE AS A NITRITE SUBSTITUTE
Vidya Padmakumar Murugan Shanthakumar	<i>Bangalore University</i>	SEABIRD ECOLOGY, CONSERVATION, AND FISHERIES INTERACTIONS: A COMPREHENSIVE REVIEW





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# 5TH INTERNATIONAL HARRAN CONGRESS OF INNOVATIVE APPROACHES IN SCIENTIFIC RESEARCH

Türkiye, Şanlıurfa



Metin ÖZKAN



Friday, December 8, 2023 - 09:00 **to** Sunday, December 10, 2023 - 17:30

The 5th International Harran Congress of Innovative Approaches in Scientific Research will be held online and face-to-face in Şanlıurfa on 8-10 December 2023.

## CONGRESS DISCIPLINES

Our congress is open to original papers written in all fields.

Disciplinary based sessions will be held

## CONGRESS LANGUAGES

Turkish, English, Russian

## IMPORTANT DATES

- Last abstract submission date: 25 November 2023
- Participation fee payment: Between 23-29 November 2023
- Congress program publication date: 3 December 2023
- Face-to-face presentations: December 8, 2023 (please read the description below)
- Online presentations: 8-9-10 December 2023
- Deadline for full text submission: 12 December 2023
- Proceedings book with ISBN final publication date: 23 December 2023

## **Study of the dynamics of ion exchange processes during water purification**

*Ph.D. Stanislav Dushkin*

*National University of Civil Protection of Ukraine*

### **ABSTRACT**

The research was carried out on an experimental installation consisting of H-cationite and OH-anionite filters, a decarbonizer, containers for the preparation and collection of fresh and spent regeneration solutions. One of the columns (H-filter) was loaded with cationite KU-2x8, the second (OH-filter) with anionite AN-22.

Intensification of ion exchange was carried out by the action of a magnetic field on the filtering ion exchange columns. The filtrate after the filters was collected in portions and analyzed for the content of hydrogen ions, i.e. acidity, which appeared as a result of ion exchange for H-cationite. Then the filtrate after the H-filter went to the OH-filter. When the filtrate was passed through the OH-anionite, the anion  $H^+$  was replaced by  $OH^-$ . The completion of the anionization process was determined by the increase in the acidity of the filtrate.

The experiment was performed as follows: the filtrate sample after H-filter was titrated with alkali in the presence of phenolphthalein - analyzed for the presence of hydrogen ions. Based on these data, the output curve of the dependence of the acidity of the filtrate on the volume of the passed liquid was constructed, and the effectiveness of the magnetic activation of the KU-2x8 was analyzed. Cationite regeneration was carried out with a 5%  $HNO_3$  solution. The regeneration solution was passed through the cationite, the spent solution was collected and its acidity was determined. Based on experimental data of cationite regeneration, the dependence of the degree of regeneration of cationite KU-2x8 on the passed volume of 5%  $HNO_3$  solution was obtained. The optimal mode of regeneration is the mode of 90% regeneration, which requires the consumption of excess acid. In the future, in order to reduce the consumption of acid, it is planned to carry out studies on the change of the working exchange capacity of KU-2x8 at different equivalence of acid in relation to loading of cationite. Studies of the dynamics of anion exchange were performed similarly. Anionite regeneration was carried out with a 5%  $NH_4OH$  solution. Washing after regeneration of anionite was carried out with softened water to a neutral medium for phenolphthalein. It was established that when magnetic activation is used to intensify ion exchange processes on the KU-2x8 cationite, the breakthrough of hardness salts occurs much later than during ordinary water softening (the duration of the filter cycle will increase by 20-22%). The full dynamic exchange capacity of the cationite occurs somewhat earlier than with ordinary water softening (8-9%). With magnetic activation of AN-22 anionite, there is an increase in the filter cycle, the volume of filtrate, and the number of sorbed anions, compared to conventional filtration. The application of magnetic activation shows an increase in sorption capacity by 21%.