Brief information about the project

| Name of the project	AP19679864 Technology of fractional sorption separation of molybdenum and tungsten by ion-exchange resins from technological solutions
Relevance	Worldwide, there is a growing demand for refractory metals, which are necessary for modern branches of science and technology. Kazakhstan has a significant reserve of refractory metals. At enterprises for the extraction and processing of many metals, man-made waste remains after flotation enrichment, which includes rare metals, in particular refractory metals. In recent years, more and more attention has been paid to the processing of secondary resources of tungsten and molybdenum.
	In real objects, the ratio of molybdenum and tungsten content differs significantly, but it is their ratio that affects the separation of metals. Therefore, it is necessary to study the effect of the Mo and W ratio in industrial solutions, as well as the effect of other related metals on the processes of tungsten separation. The separation of molybdenum and tungsten by the sorption method in a dynamic mode on synthetic ion exchange resins is an economically advantageous process due to the simplicity of the technological scheme and inexpensive equipment. The range of commercial ion exchange resins is quite wide, but not all resins are suitable for the separation of Mo and W. Ion exchange resins D301 and Purolite A830 are widely used to separate Mo and W. In this project, we want to modify these resins to increase the efficiency of sorption separation of molybdenum and tungsten.
Purpose	The aim of the project is to develop a technological scheme for the fractional sorption separation of molybdenum and tungsten with modified ion exchange resins from technological solutions
Objectives	- to study the effect of the ratio of molybdenum and tungsten content on their separation; - to investigate the efficiency of metal sorption with ion-exchange resins; - to choose the optimal sorbent for the separation of molybdenum and tungsten; - modify ion exchange resins; - to test the sorption of molybdenum and tungsten with modified sorbents; - to choose the optimal sorption mode with modified sorbents for the separation of molybdenum and tungsten; - process the results and determine the precision; - to develop a technological scheme for the sorption separation of molybdenum and tungsten.
Expected and achieved results	As a result of the project, the effects of the ratio of molybdenum and tungsten content in technological solutions on the separation of metals will be studied; sorption of metals with ion-exchange resins was carried

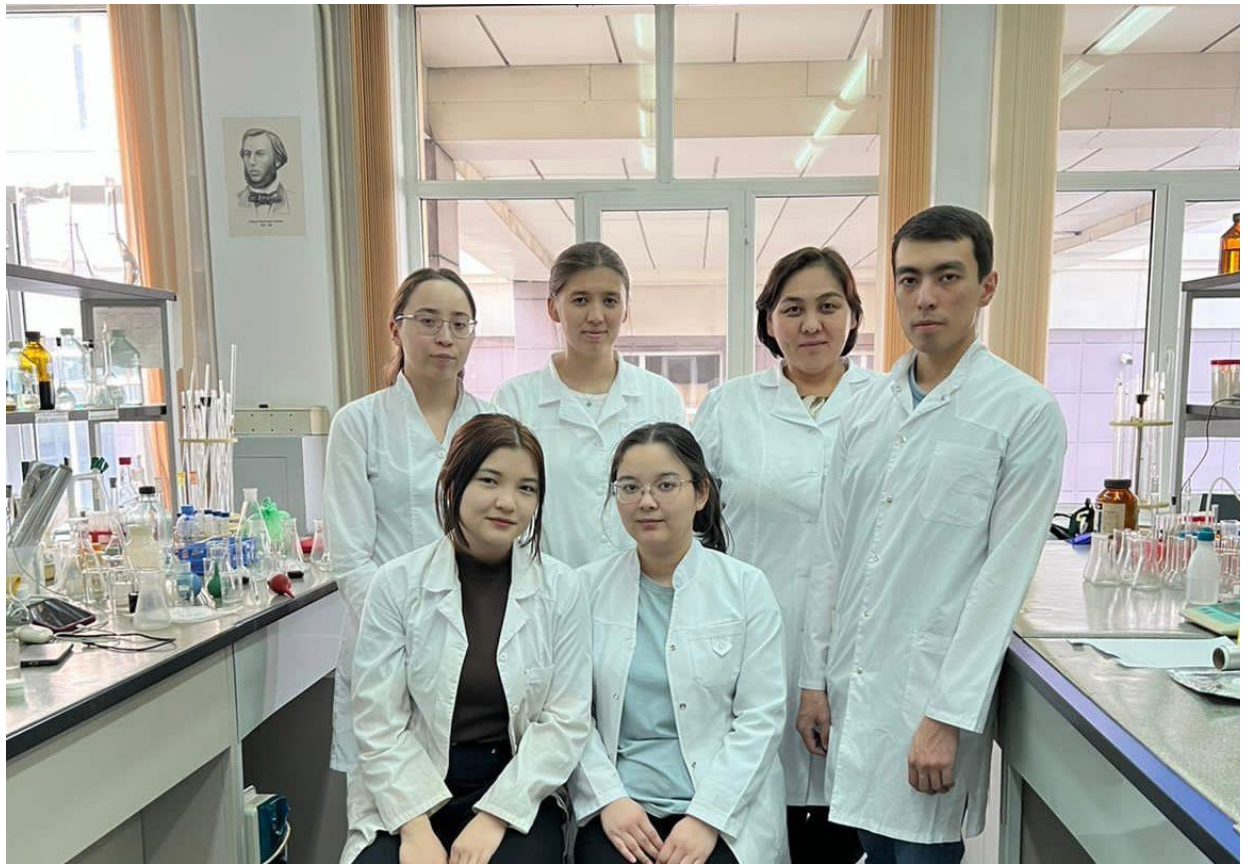|	
	out; ion-exchange resins were modified; a technological scheme for the separation of molybdenum and tungsten was developed; it is planned to publish articles in peer-reviewed scientific publications in the scientific direction of the program, included in 1 (first), 2 (second) or 3 (third) quartiles in the Web of Science database and (or) having a CiteScore percentile in the Scopus database of at least 50 (fifty); as well as in publications recommended by COXON; at least 1 application for a patent for a utility model and (or) inventions has been filed. The results of the project will be reflected in 1 PhD and 1 Master's thesis.
Research team members with their identifiers (Scopus Author ID, Researcher ID, ORCID, if available) and links to relevant profiles	1. Ismailova Akmaral Gazizovna, Candidate of Chemical Sciences: Web of Science Researcher ID - GLR-6827-2022 ORCID: https://orcid.org/0000-0002-5555-2705 Scopus ID: 57193336562 2. Rashit Dilyara Rashitovna, PhD doctoral student ORCID: 0000-0003-3711-8793 3. Elena Viktorovna Zlobina, Candidate of Chemical Sciences, Associate Professor Scopus ID: 41262845500 4. Akanova Gulsara Zhakashovna, PhD doctoral student ORCID: 0000-0003-3711-8793
List of publications with links to them	-
Patents	-

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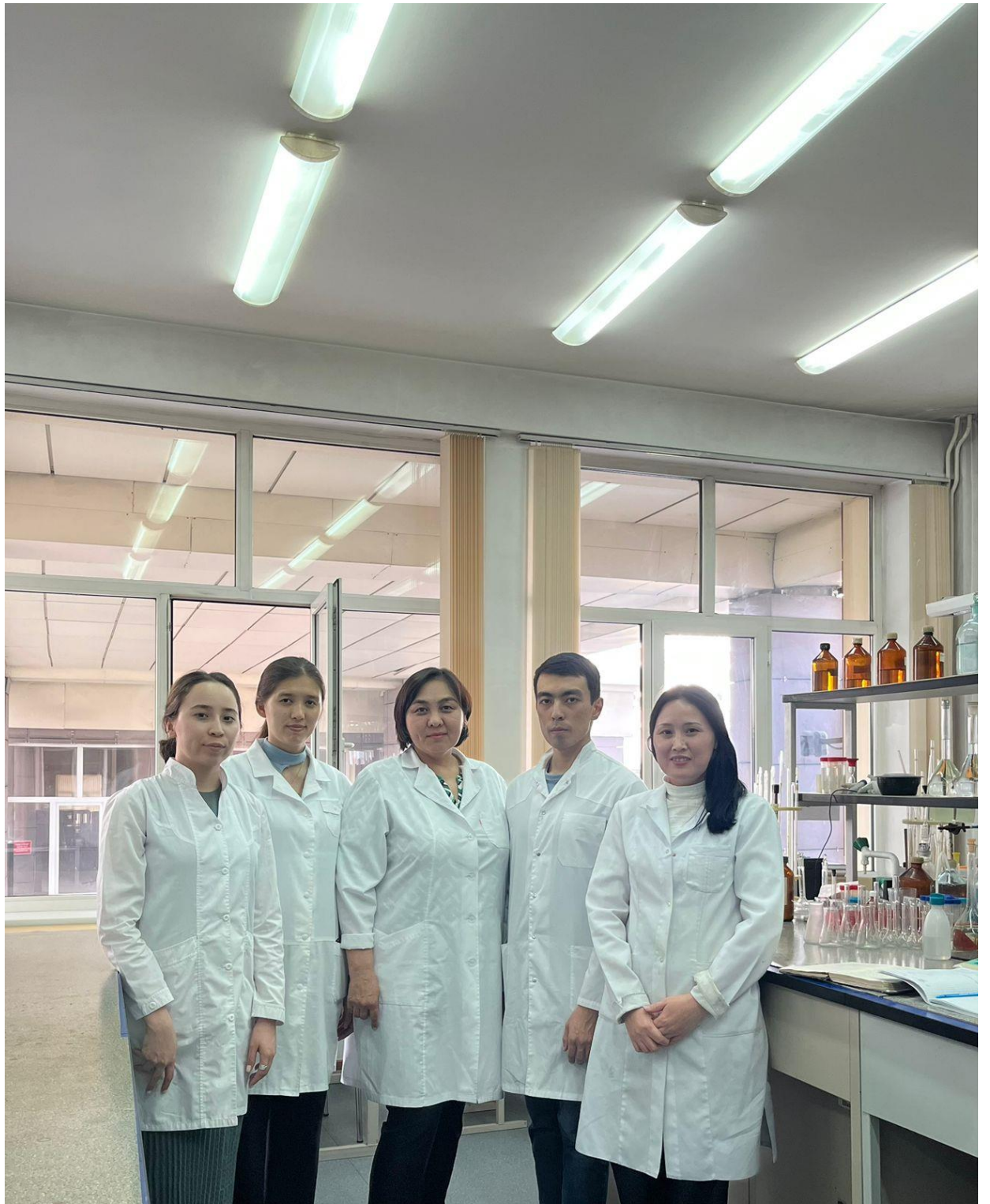
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