

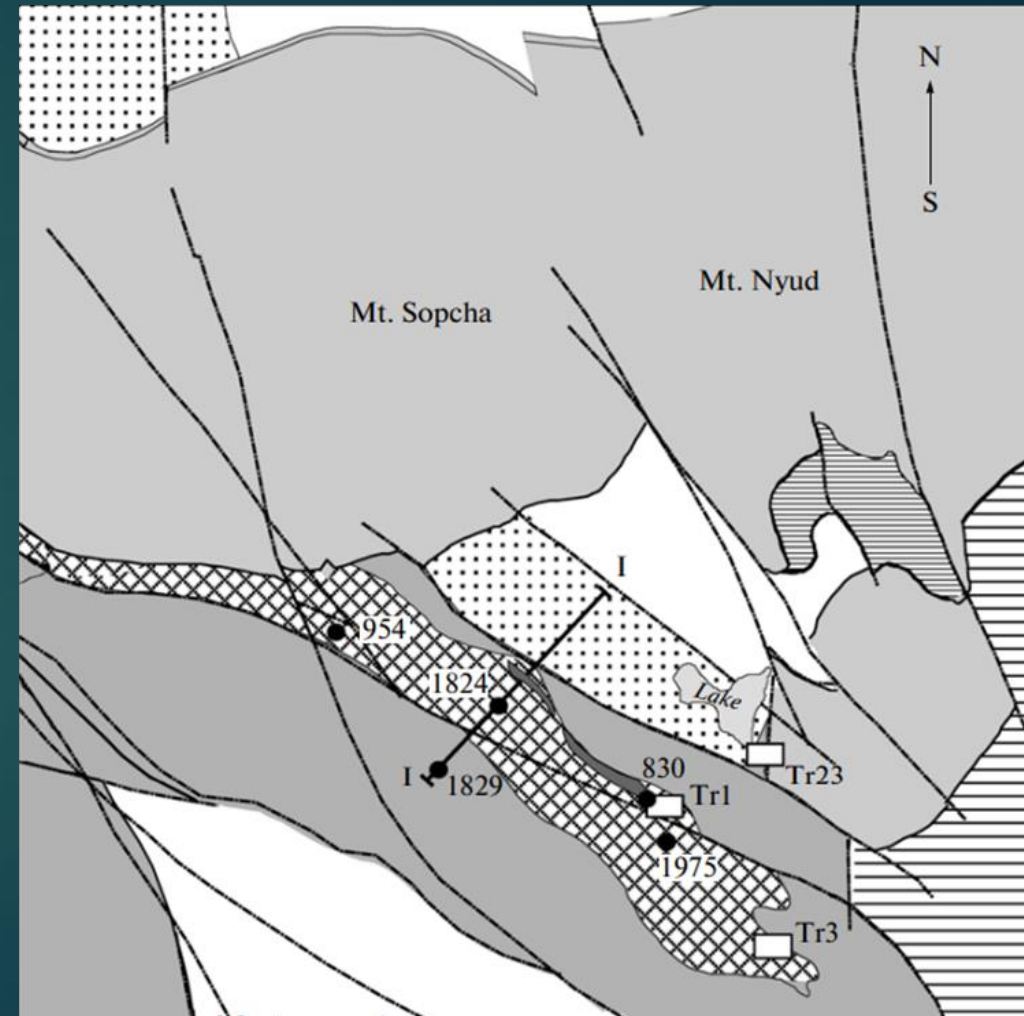
Biobleaching of sulfide copper-nickel ores

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Motivation

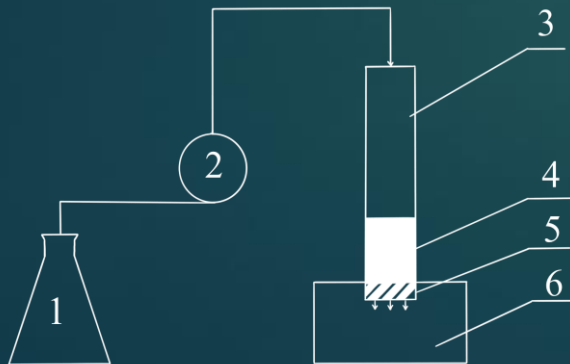
SIGNIFICANT RESERVES OF THE MOST IMPORTANT TYPES OF MINERAL RAW MATERIALS ARE CONCENTRATED IN THE MURMANSK OBLAST, AND LARGE NUMBER OF DEPOSITS OF SULFIDE COPPER-NICKEL ORES HAVE BEEN DISCOVERED IN THIS REGION. AT THE SAME TIME, THERE ARE A NUMBER OF DEPOSITS IN THE REGION THAT ARE NOT EXPLOITED DUE TO THE LOW CONTENT OF VALUABLE COMPONENTS AND OF SMALL RESERVES. THE GOAL OF THIS WORK WAS TO PERFORM LABORATORY TRIALS TO DETERMINE THE POSSIBILITY OF EXTRACTING CU AND NI FROM COPPER-NICKEL ORES USING THE HEAP BIOLEACHING METHOD.



Materials and methods

Materials:

- Sulphide Copper-Nickel ores of Sopcha and Nyud II deposits
- Mixed culture of acidophilic microorganisms
- Percolators: 1 – conic flask, 2 – pump, 3 – plastic column, 4 – ore, 5 – claydite, 6 - container



Methods:

- The ores were crushed to -5+1 mm
- The tests were carried out at three temperatures: at 25, 35 and 45°C
- Solid to liquid ratio in the percolators was 1 : 1
- Duration of the experiments: Sopcha – 159 days, Nyud II – 138 days

Conclusion

THE RESULTS OF THE EXPERIMENTS DEMONSTRATED THE POSSIBILITY OF LONG-TERM BIOLEACHING OF THE STUDIED ORE TO EXTRACT NON-FERROUS METALS, WHILE THE EXTRACTION OF NICKEL MAY BE OF GREATER PRACTICAL INTEREST DUE TO ITS HIGHER COST AND HIGHER LEACHING RATE.

Thank you for attention!