Electronic Supplementary Information

Supramolecular chiral surface of nickel sulfate hexahydrate crystals and its ability to chiral recognition by enantiomers adsorption data

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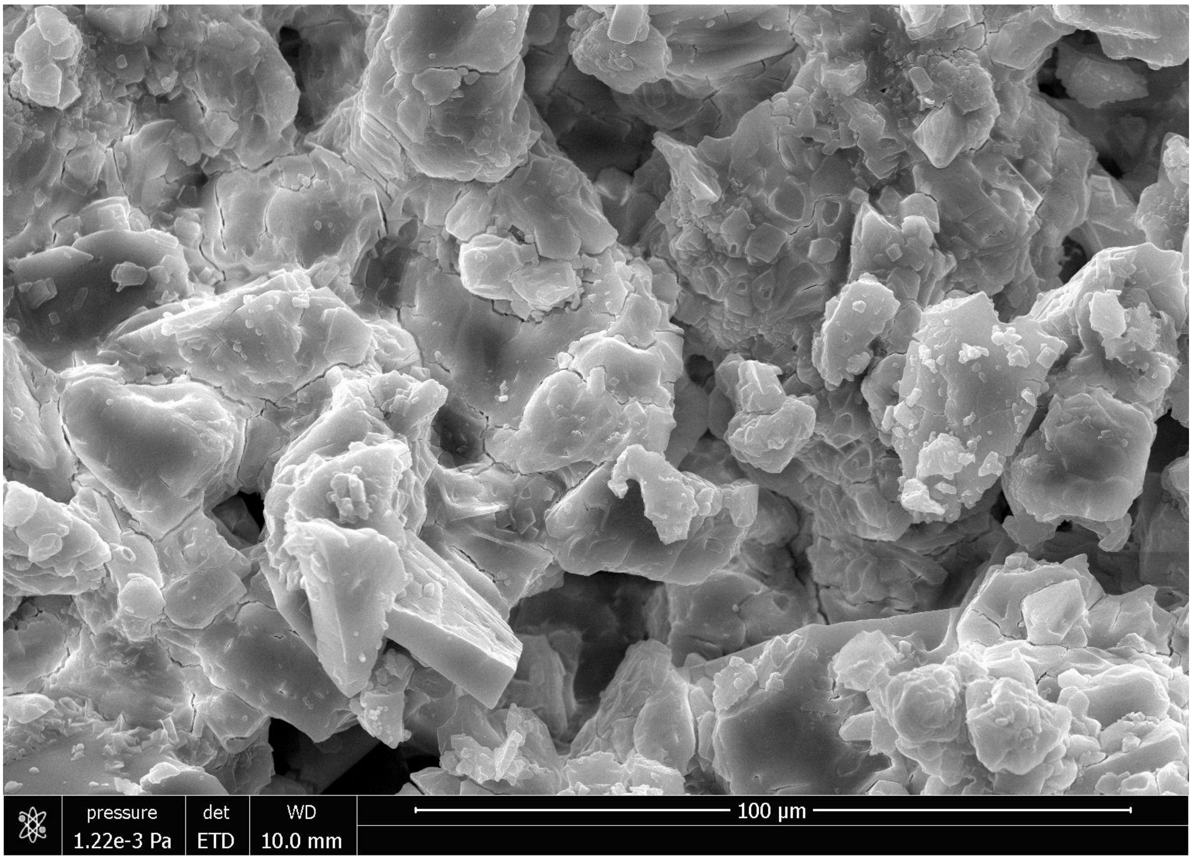

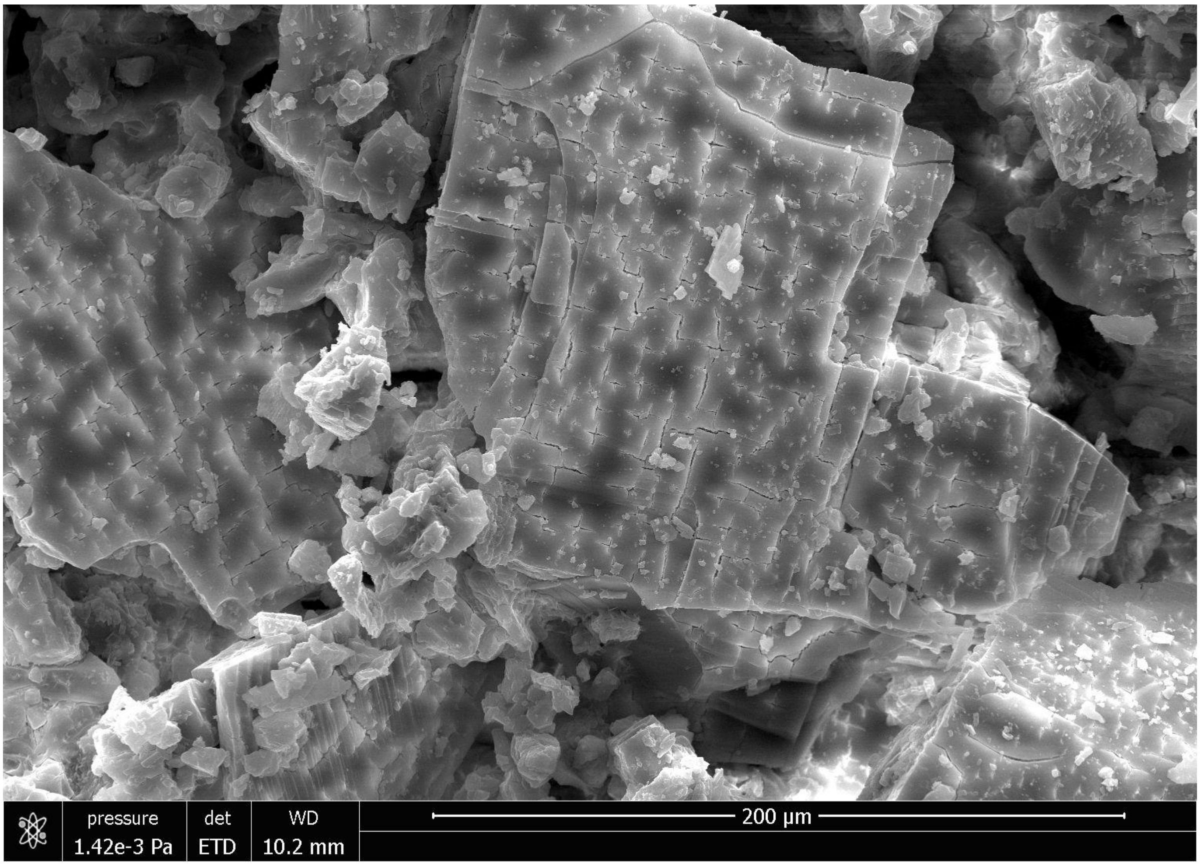
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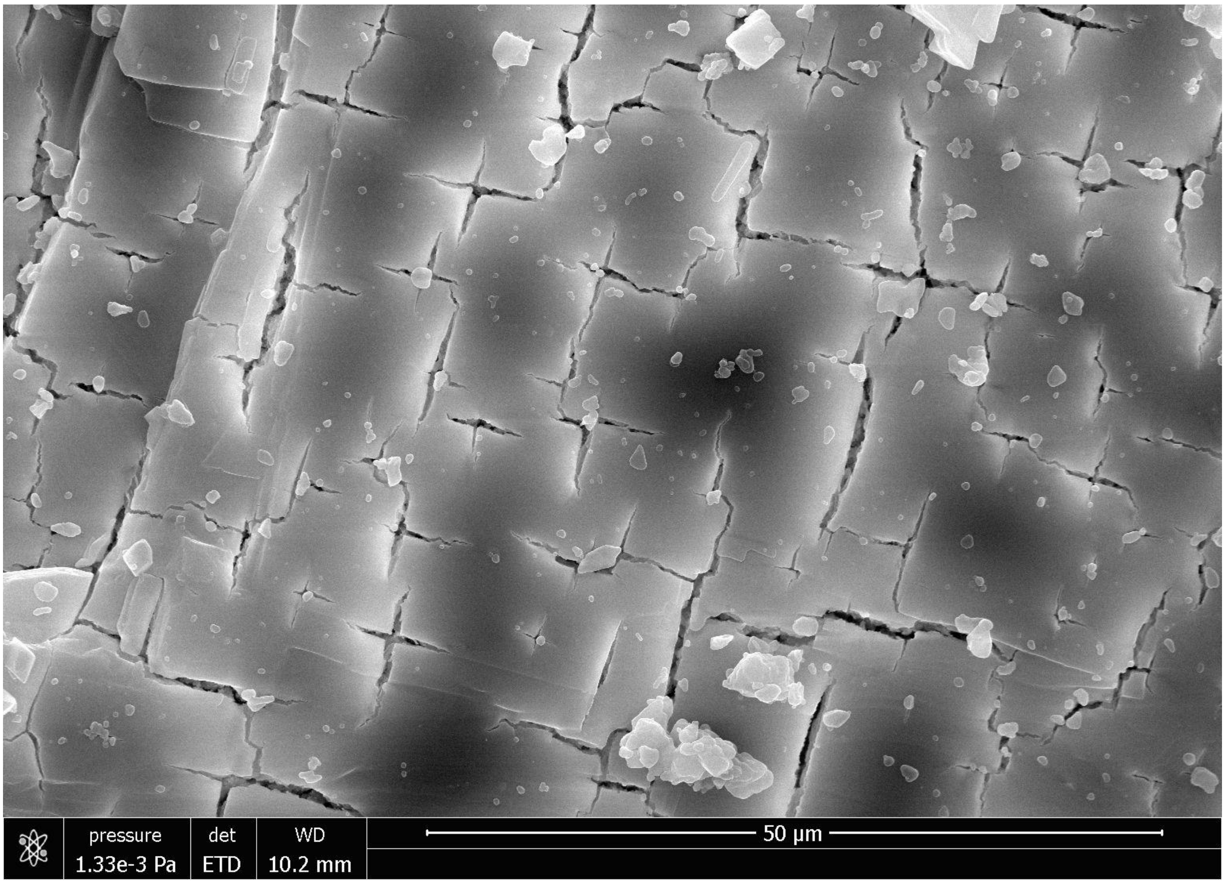
det
ETD
WD
10.2 mm
200 µm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ETD
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10.2 mm
50 µm

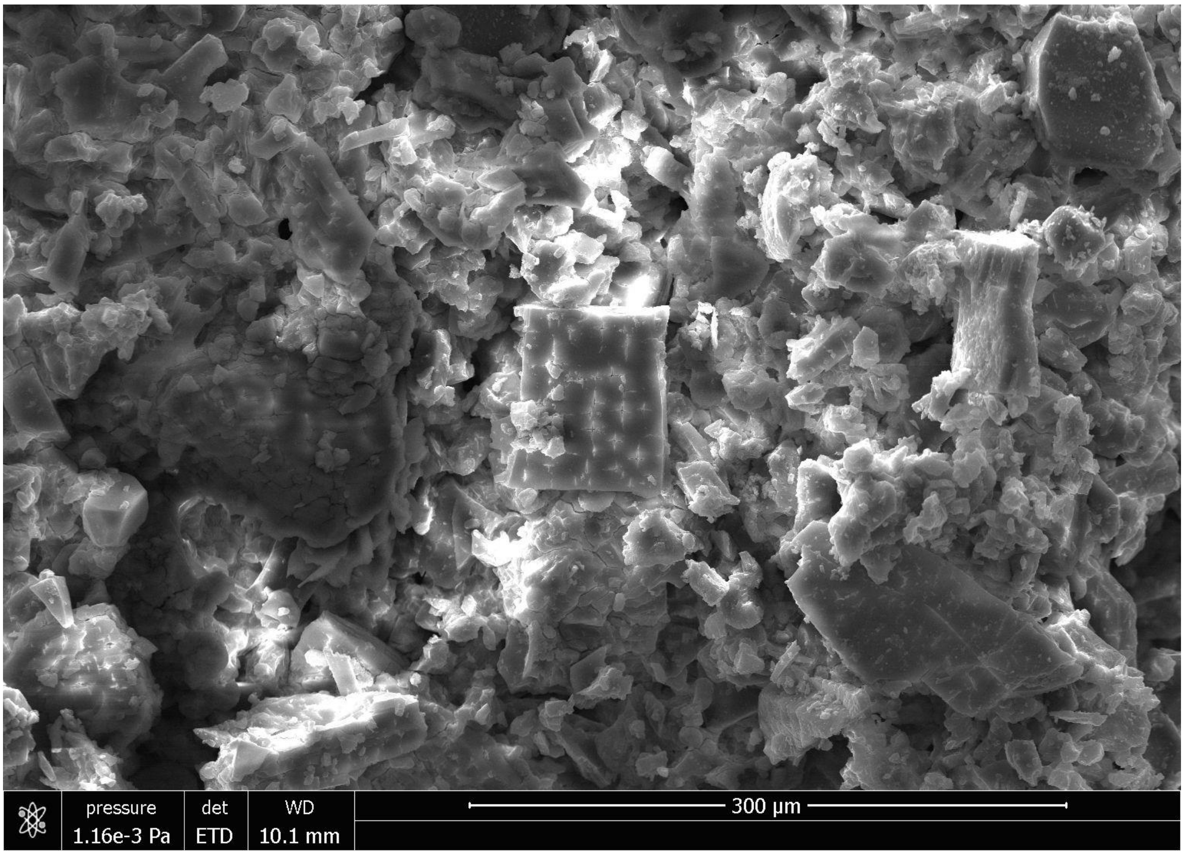
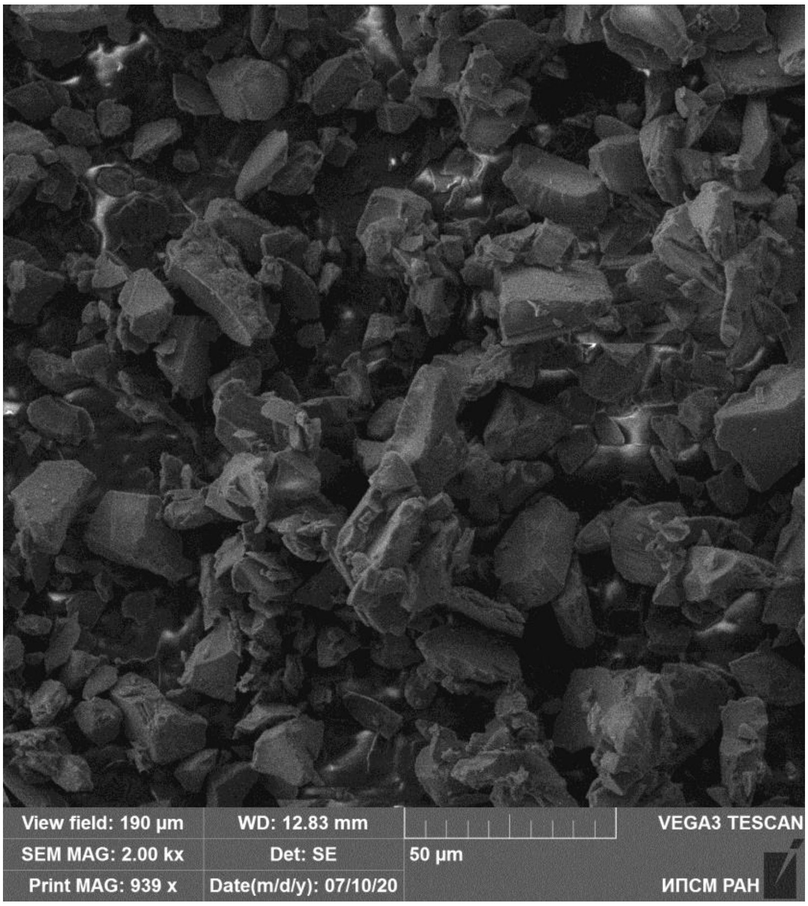


Fig. 1. SEM image of nickel sulfate hexahydrate grounded crystals.



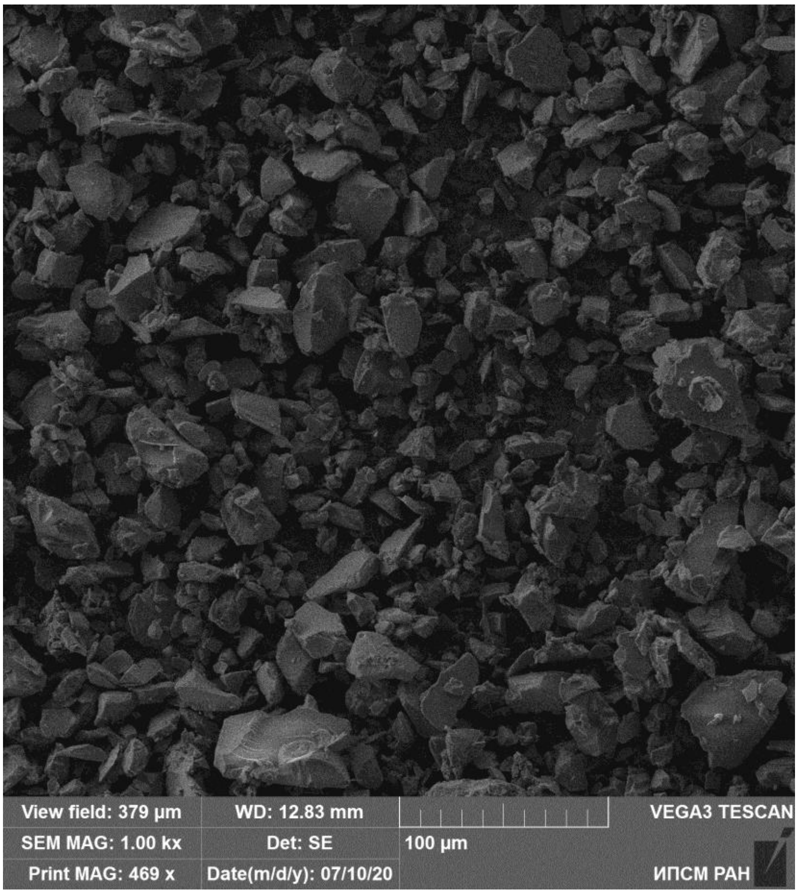


Fig. 2. SEM image of silica gel, modified by nickel sulfate hexahydrate

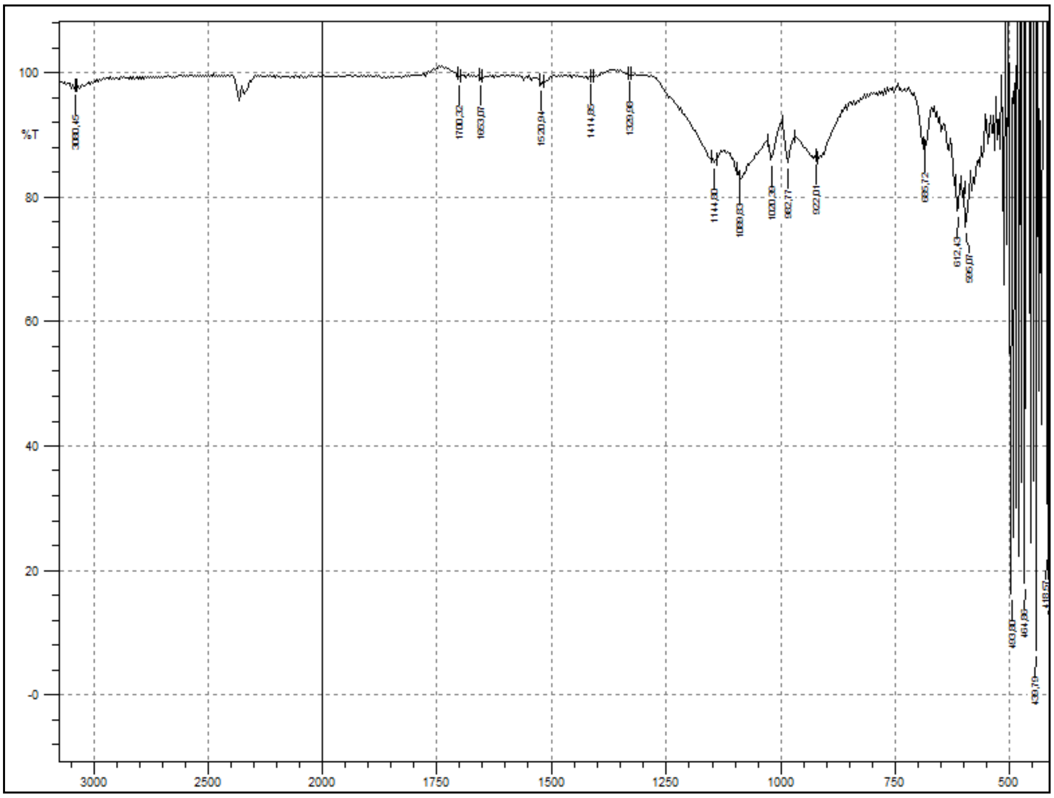


Fig. 3. ATR-FTIR spectrum of nickel sulfate

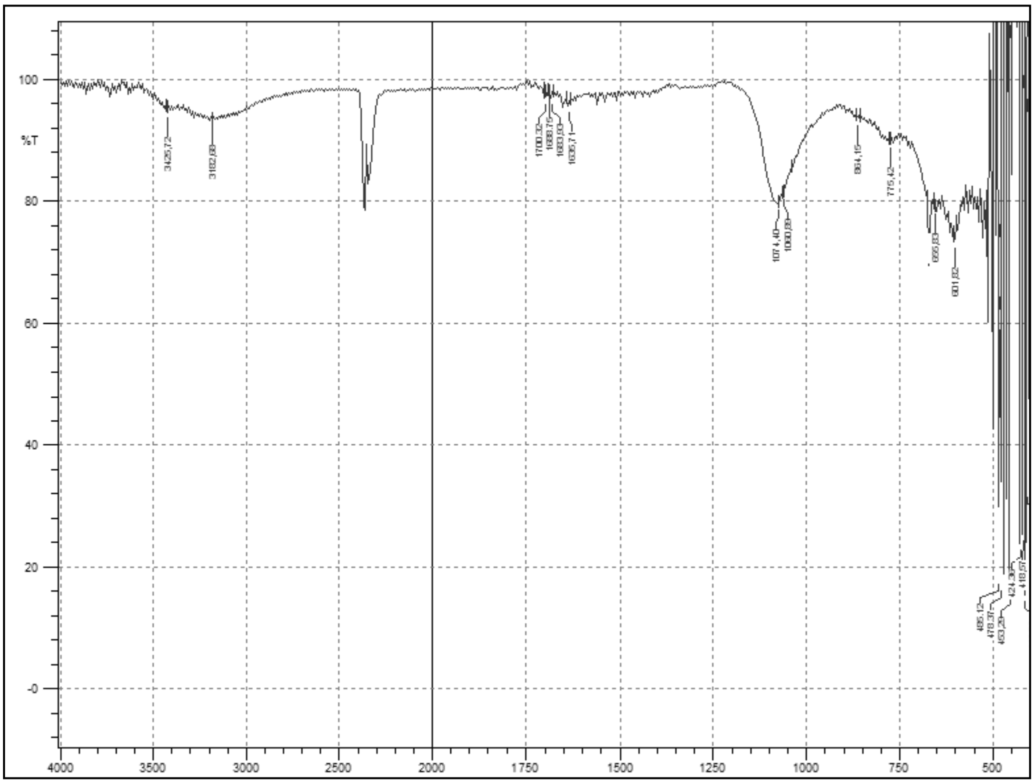


Fig 4. ATR-FTIR spectrum of nickel sulfate hexahydrate

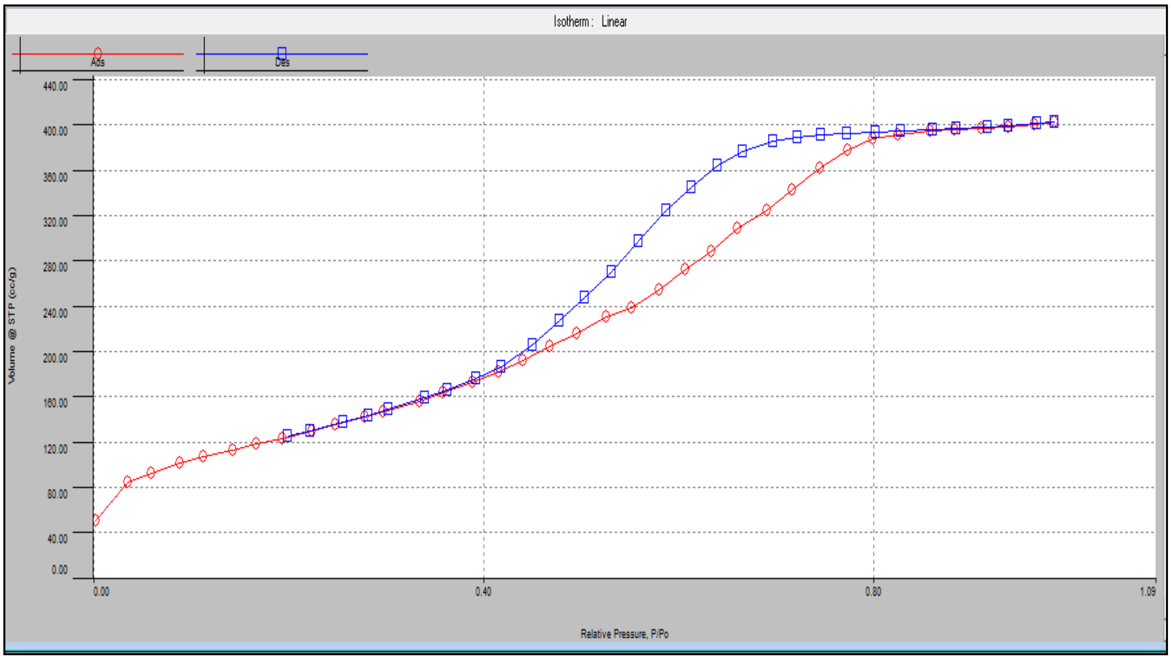


Fig 5. Nitrogen adsorption-desorption isotherm at 77 K on initial silica gel

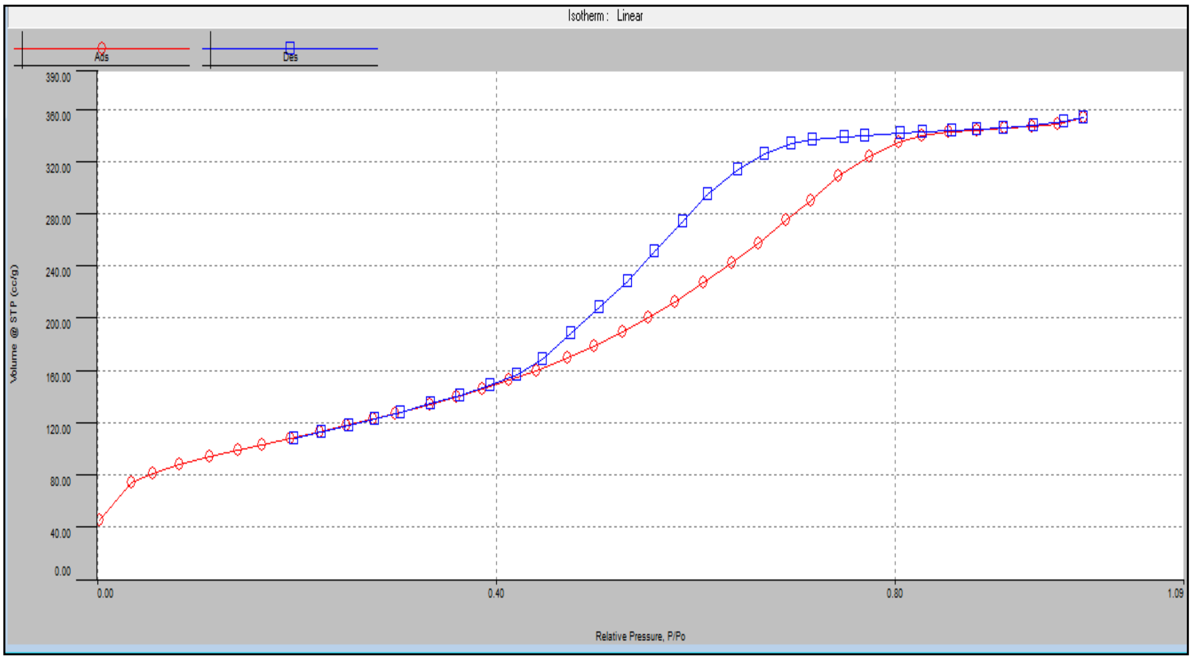


Fig 6. Nitrogen adsorption-desorption isotherm at 77 K on silica gel, modified by nickel sulfate hexahydrate

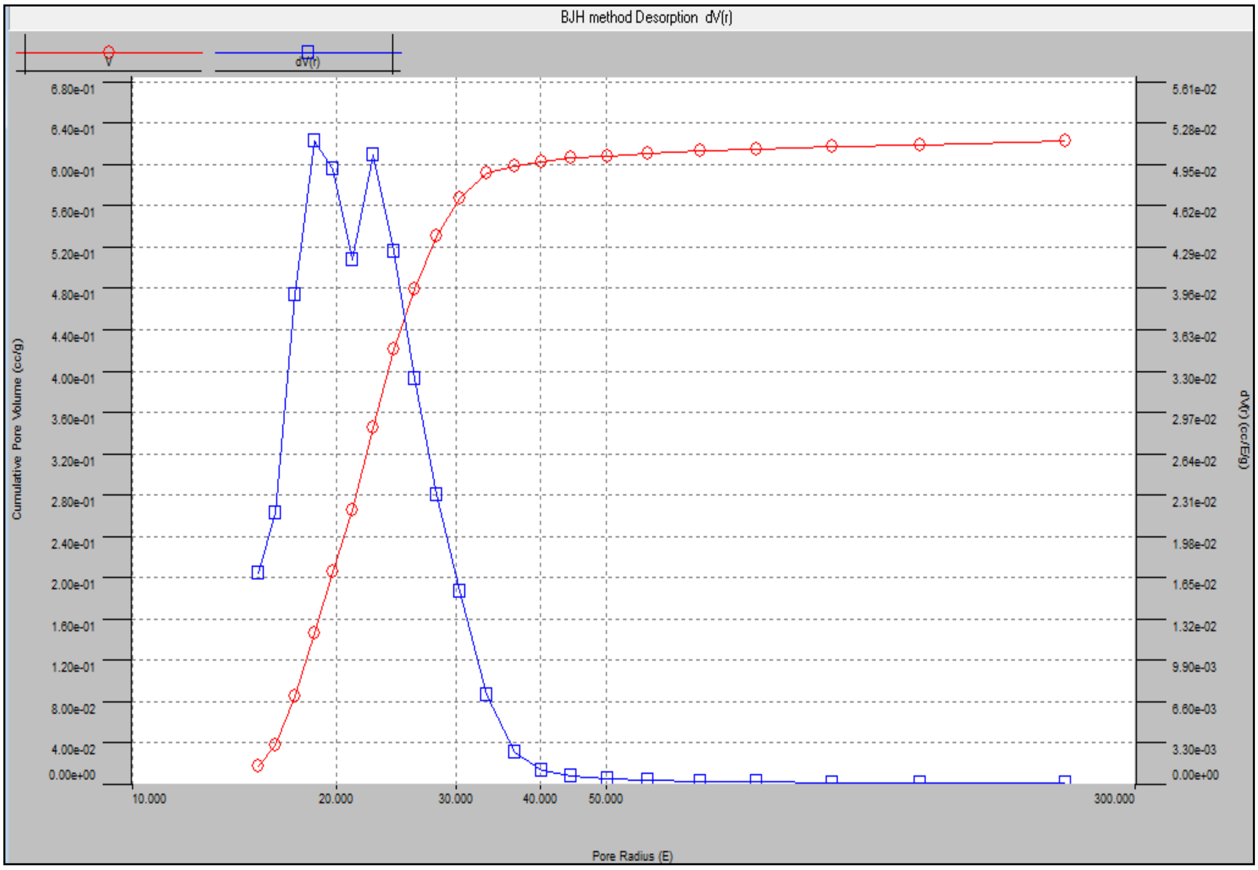


Fig 7. Mesopore distribution by BJH on initial silica gel

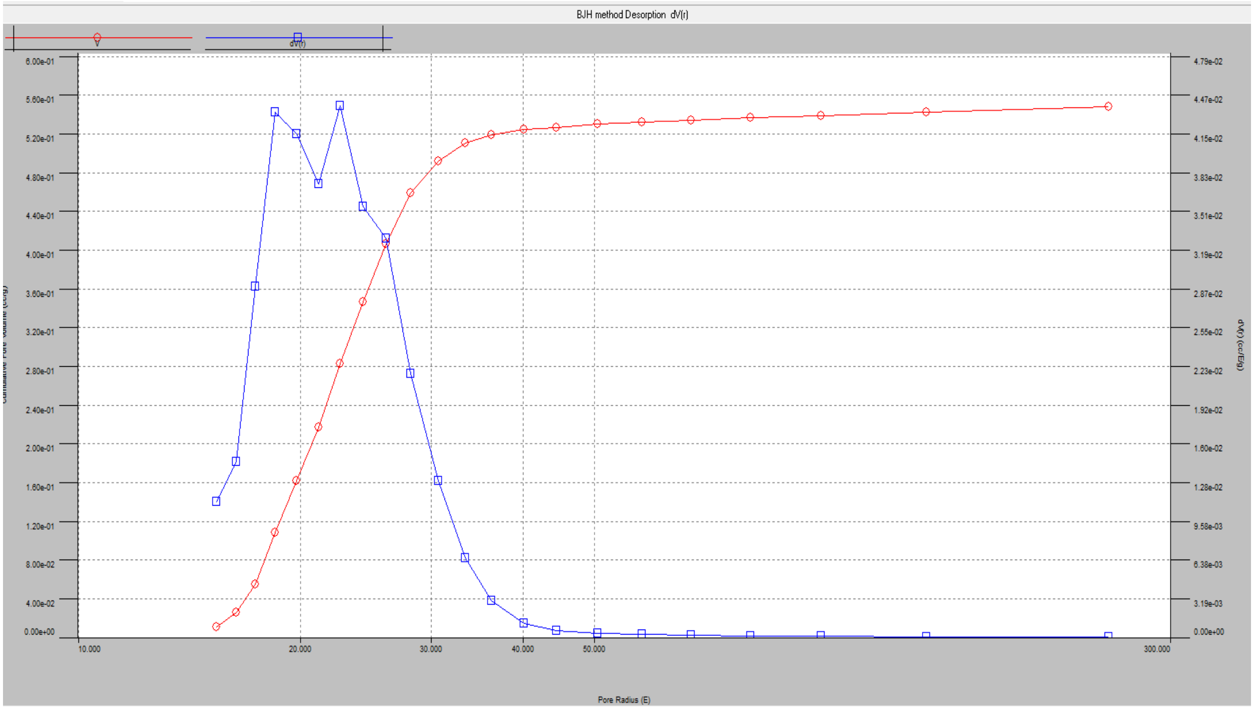


Fig 8. Mesopore distribution by BJH on silica gel, modified by nickel sulfate hexahydrate

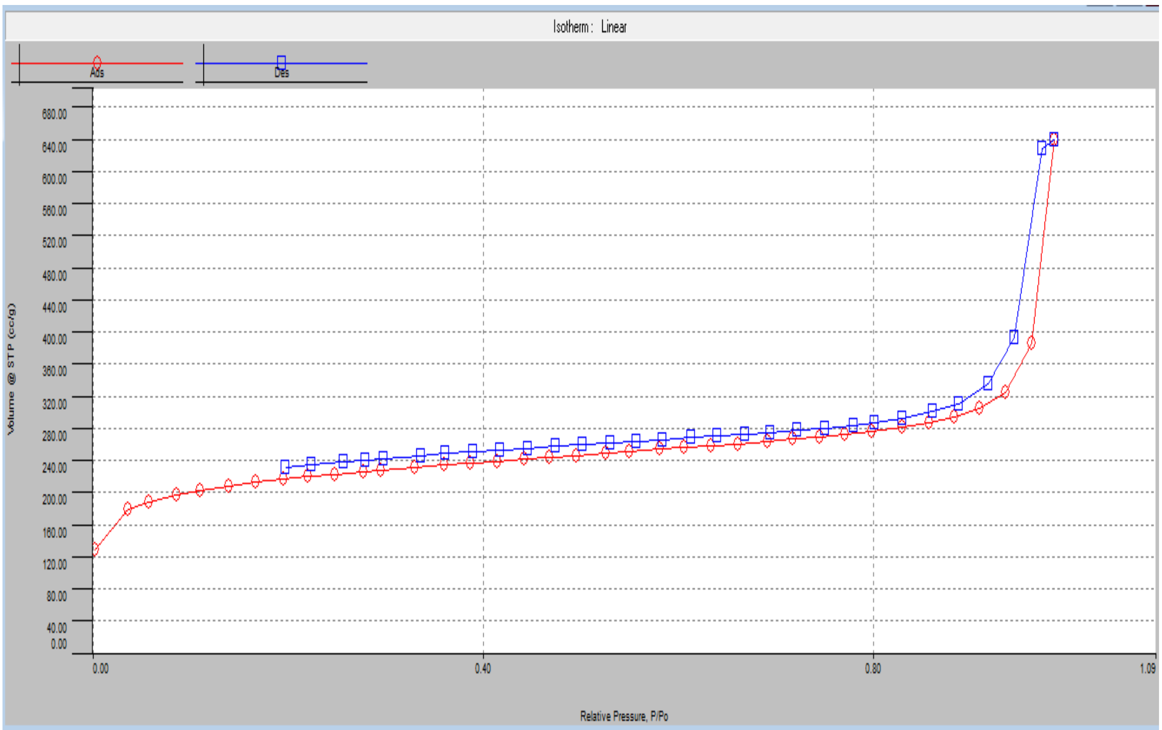


Fig 9. Nitrogen adsorption-desorption isotherm at 77 K on initial porous polymer

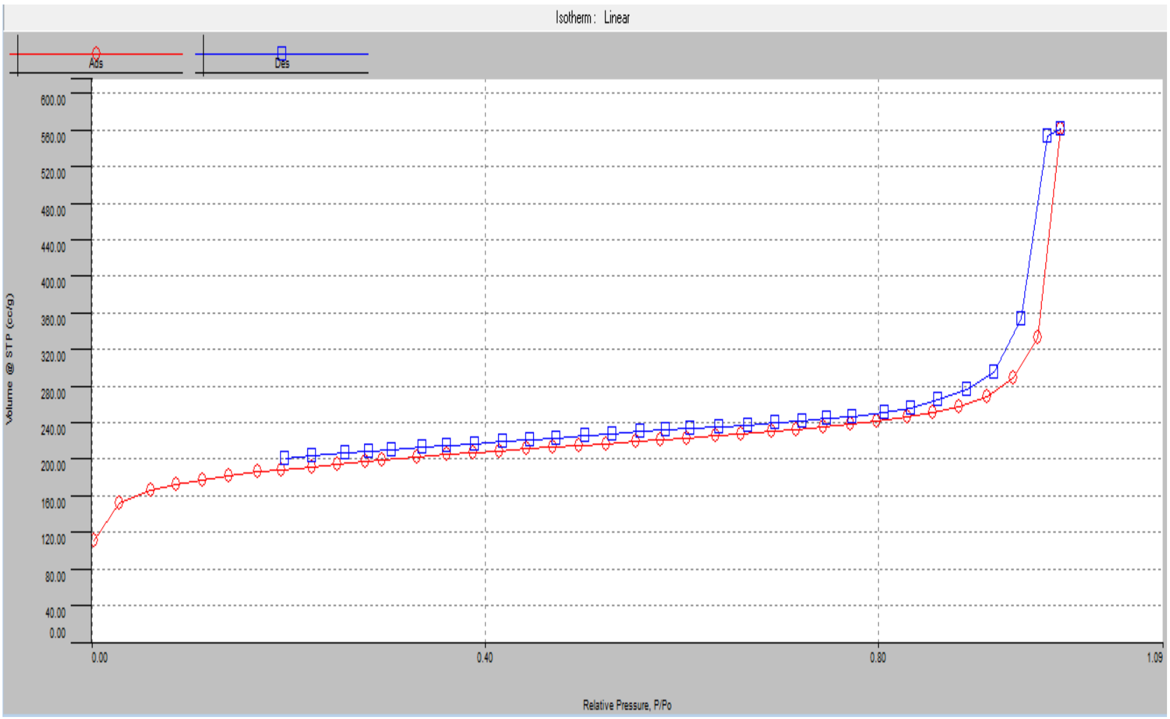


Fig 10. Nitrogen adsorption-desorption isotherm at 77 K on porous polymer, modified by nickel sulfate hexahydrate

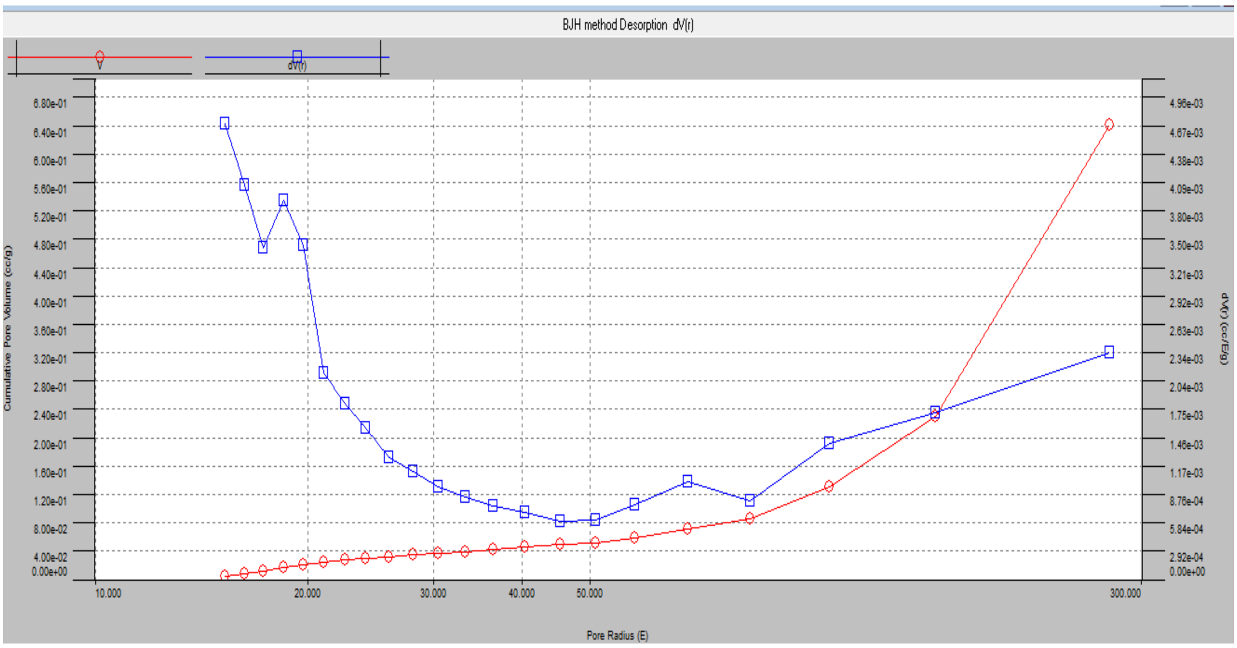


Fig 11. Mesopore distribution by BJH on initial porous polymer

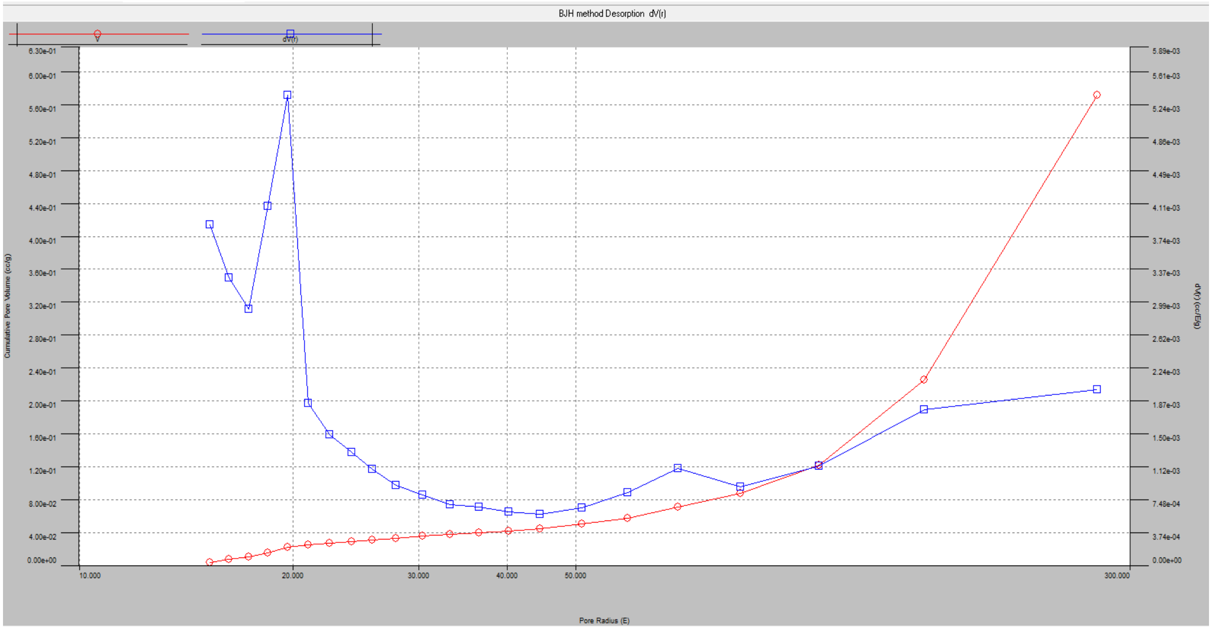


Fig 12. Mesopore distribution by BJH porous polymer, modified by nickel sulfate hexahydrate

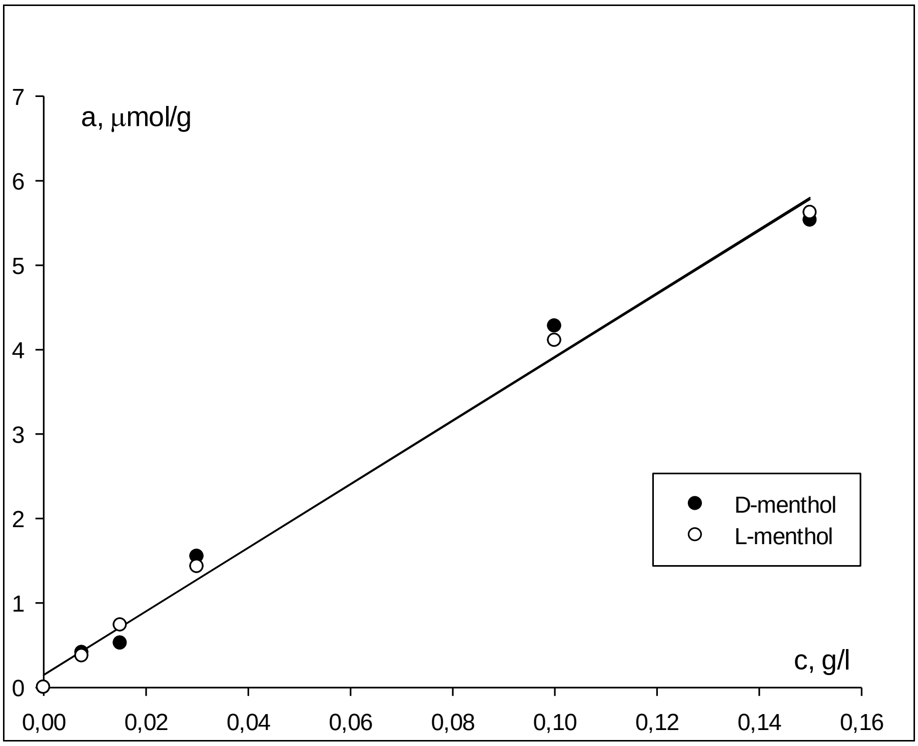


Fig 13. The first area of adsorption isotherm of menthols from n-heptane solutions, by porous polymer, modified with nickel sulfate hexahydrate. Henry constants: D-menthol – 43±3 µmol*l/g^2, L-menthol – 41±3 µmol*l/g^2.

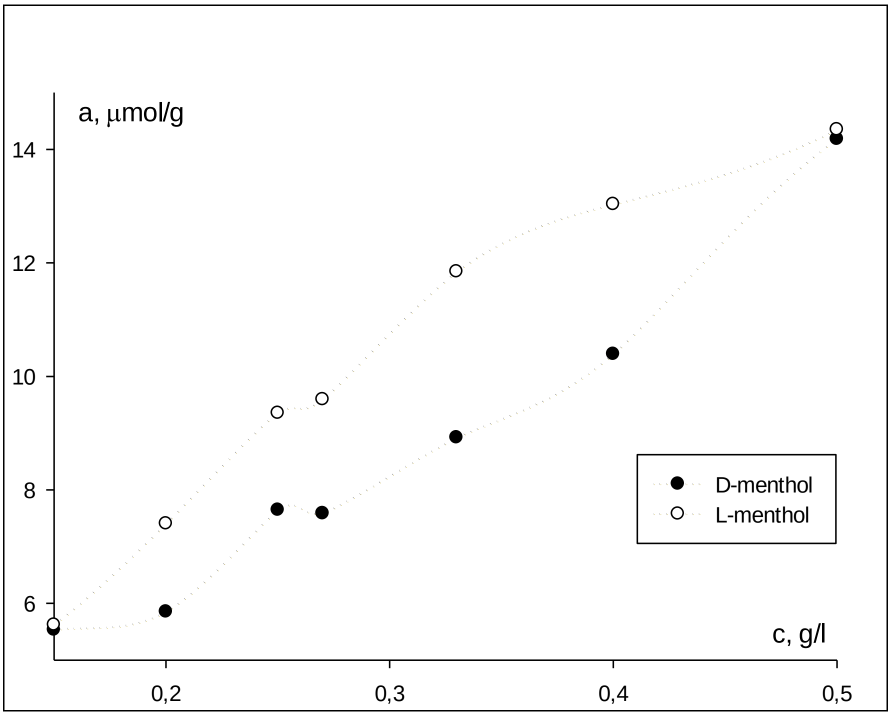


Fig 14. The second area of adsorption isotherm of menthols from n-heptane solutions, by porous polymer, modified with nickel sulfate hexahydrate.

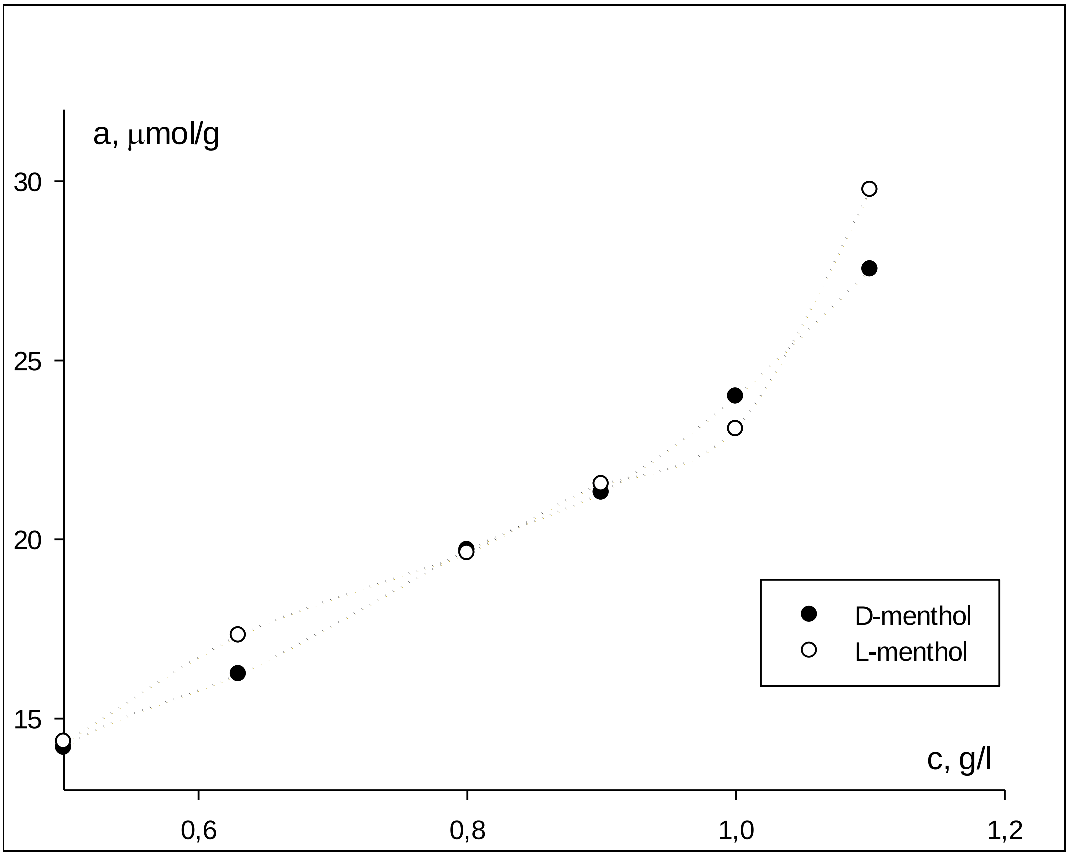


Fig 15. The third area of adsorption isotherm of menthols from n-heptane solutions, by porous polymer, modified with nickel sulfate hexahydrate.

An approach used to prove the chiral separation of pentanol-2 in LC conditions

Liquid chromatography allows obtaining a sufficient quantity of separation products. In this study, to prove the chiral separation, during the elution we have collected separately the substances of the first and second peaks. Then we have analyzed them by both GC and polarimetry. GC analysis has shown that in both cases the collected sample consists of eluent (n-heptane) and pentanol-2. But for the first sample the angle of rotation has positive values (for example, +0.11 º in the case of injected sample with 10 mg/ml concentration), and for the second – negative values (-0.11 º for 10 mg/ml concentration). It proves that the separation observed is real chiral separation.