

## ACHIEVEMENTS OF THE EXTRACTIVE FREEZING-OUT METHOD IN SAMPLE PREPARATION

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In many cases chemical analysis or technology is preceded by the stage of isolation of the target components from the aqueous media. It is widely used liquid-liquid, gas and solid phase extraction, sorption. In contrast, the method of extractive freezing-out, proposed in 2005, is based on another principle - the creation of the phase boundary directly in the sample volume after the addition of a soluble extractant.<sup>1-3</sup> Carrying out extractive freezing-out under the action of the centrifugal force field (EFC) allowed to significantly increase the efficiency of the method by changing the partition coefficients and reducing the share of the extractant in the initial mixture.<sup>4-5</sup> Selectivity of method is based on the variation of extractant, pH and EFC conditions. The experience of using EFC in analytical practice (drug analyses, determination of plant BAS, food control, ecological monitoring) allows us to note some important qualities and advantages over other methods of extraction:

- the enrichment degree and efficiency of extraction of organic compounds from water, especially polar, exceed the traditional liquid extraction;
- it is possible to use water-soluble extractants without additional chemical sample modification, for example, salting out;
- extracts do not contain water and dispersed particles, even when using acetonitrile and are compatible with reversed-phase HPLC;
- allow to extract substances from highly contaminated, dispersed samples directly without any additional operations, such as filtering;
- cheaper than liquid and solid-phase extraction (QuEChERS) due to a significant reduction of operations, chemicals, implements and extractant;
- it is indispensable in the study of thermolabile organic compounds, as well as favorable for improving working conditions and safety, because it significantly reduces the volatility of solvents and extractable substances.

### References

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