Author's Accepted Manuscript

Using of aerodynamic droplet breakup for mass-spectrometric analysis

Viktor V. Pervukhin, Dmitriy G. Sheven

www.elsevier.com/locate/talanta

PII: S0039-9140(18)30289-3
DOI: https://doi.org/10.1016/j.talanta.2018.03.050
Reference: TAL18484

To appear in: *Talanta*

Received date: 22 January 2018
Revised date: 13 March 2018
Accepted date: 15 March 2018

Cite this article as: Viktor V. Pervukhin and Dmitriy G. Sheven, Using of aerodynamic droplet breakup for mass-spectrometric analysis, *Talanta,* https://doi.org/10.1016/j.talanta.2018.03.050

Using of aerodynamic droplet breakup for mass-spectrometric analysis

Viktor V. Pervukhin, Dmitriy G. Sheven[1]

Nikolaev Institute of Inorganic Chemistry of SB RAS, Acad. Lavrentieva Ave., 3, 630090

Novosibirsk, Russia

sh_dim@ngs.ru

Abstract

The method of ionization by aerodynamic droplet breakup is considered for applications in mass spectrometric analysis. It is assumed that Aerodynamic Breakup Droplet Ionization (ABDI) occurs in a tube linking the region of atmospheric pressure to the area of weak vacuum. The possibility of ionization of solutions of organic compounds and organometallic complexes is shown. As test compounds were chosen: heroin (as an example of organic compounds) and organometallic complexes of ruthenium and copper, dissolved in water or acetonitrile. The quality of the ABDI spectra depends on the analyte. In general, the analytes ionized by the ABDI method show a great propensity to form dimers and trimers. ABDI system can be easily installed on any mass spectrometer with inlet at atmospheric pressure and used as an additional method. Since compounds prone to degradation in ESI analysis are better suited for ABDI analysis, this seems useful.

Keywords: aerodynamic droplet breakup; mass-spectrometric analysis; heroin; organometallic complexes

[1]To whom correspondence should be addressed. Fax: +7 (383) 330-94-89.