

Analysis of the carboxylic acid in surface water of the subarctic zone of western Siberia

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Monitoring of organics in surface water, transferred into the world's oceans, allows to evaluate organic compounds balance changing as a result of global warming and the permafrost thawing [1-3]. Low content of organic compounds requires special approaches. Authors have applied a method of water distillation followed by the solid-phase extraction (SPE) of a distillate on polymeric sorbents. Extracted from water oxygen-containing organic compounds were modified for the subsequent analysis by GC-MS or HPLC-MS. The table shows the results of acids content (ppb) in surface water of the subarctic zone of Western Siberia.

| Acid | water sample | | | |
|-----------|--------------|---------|---------|---------|
| | lake 1 | river 1 | river 2 | river 3 |
| Lactic | 3,1 | 0,7 | 2,3 | 2,5 |
| Benzoic | 1,8 | 1,2 | 3,3 | 1,7 |
| Salicylic | 5,7 | – | – | – |
| C12:0 | 0,6 | 0,1 | 0,1 | 0,1 |
| C14:0 | 0,9 | 0,2 | 0,4 | 0,6 |
| C15:0 | 0,6 | 5,6 | 1,3 | 1,3 |
| C16:1 | – | – | 0,9 | 0,9 |
| C16:0 | 2,0 | 4,6 | 0,9 | 1,4 |
| C18:1 | 0,4 | – | 1,3 | 0,7 |
| C18:0 | 1,8 | 9,0 | 0,6 | 1,0 |

Table: Acid content (ppb) in some water samples

A combination of distillation and SPE allows to detect small amounts of organic compounds in the water samples (including ice and snow) with RSD of about 20-30%.

- [1] Guggenberger & Kaiser (2003) *Geoderma* **113**, 293–310.
[2] Zsolnay (2003) *Geoderma* **113**, 187– 209. [3] Delpla *et al.* (2009) *Environ. Int.* **35**, 1225–1233.