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**Table of contents**

[Food testing and agriculture](#)

# Food testing and agriculture

## [Stable Isotope Composition of Fatty Acids in Organisms of Different Trophic Levels in the Yenisei River](#)

*PLoS ONE*, 7, (2012)

Michail I. Gladyshev *et al.*

### Tags

HP-FFAP, 6890 GC, 5975 MS, food testing & agriculture

### Abstract

We studied four-link food chain, periphytic microalgae and water moss (producers), trichopteran larvae (consumers I), gammarids (omnivorous – consumers II) and Siberian grayling (consumers III) at a littoral site of the Yenisei River on the basis of three years monthly sampling. Analysis of bulk carbon stable isotopes and compound specific isotope analysis of fatty acids (FA) were done. As found, there was a gradual depletion in  $^{13}\text{C}$  contents of fatty acids, including essential FA upward the food chain. In all the trophic levels a parabolic dependence of  $\delta^{13}\text{C}$  values of fatty acids on their degree of unsaturation/chain length occurred, with 18:2n-6 and 18:3n-3 in its lowest point. The pattern in the  $\delta^{13}\text{C}$  differences between individual fatty acids was quite similar to that reported in literature for marine pelagic food webs. Hypotheses on isotope fractionation were suggested to explain the findings. © The Authors.

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