

DATA BULLETIN

Determining the $\delta^{15}\text{N}$ isotope ratio of fruit and vegetables with Biovision

Biovision is a complete solution for stable isotope analysis in the food and fragrance industries and is a critical tool in the arsenal for protecting the consumer from unscrupulous behavior. With low running costs and minimal contact time, **Biovision** provides significant competitive advantage to your laboratory.

Premium prices for biological fruits and vegetables produced by organic farming make these products interesting for manipulation. Analysis of the $\delta^{15}\text{N}$ signature of vegetables can help detect fraudulent activity, since it largely depends on the difference in $\delta^{15}\text{N}$ of mineral and biological fertilizers. Products from organic cultivation are relatively more enriched in $\delta^{15}\text{N}$. However, the robustness of using $\delta^{15}\text{N}$ to differentiate between biological and conventional production will depend on the establishment of databases that have been verified for individual plant products.

| BIOLOGICAL | $\delta^{15}\text{N}$ [‰] | CONVENTIONAL | $\delta^{15}\text{N}$ [‰] |
|--------------|---------------------------|--------------|---------------------------|
| tomato | 7.36 ± 0.03 | tomato | -1.36 ± 0.07 |
| sweet pepper | 6.89 ± 0.15 | sweet pepper | 1.16 ± 0.05 |
| avocado | 4.82 ± 0.06 | | |
| cucumber | 7.14 ± 0.01 | | |

This data bulletin demonstrates the analysis of vegetable samples using the **Biovision** stable isotope analyzer. Different freeze-dried and finely ground samples from conventional and biological production were weighed into tin boats and analyzed with the **Biovision**. The average $\delta^{15}\text{N}$ values and corresponding absolute standard deviations are given above.

The results show that the $\delta^{15}\text{N}$ value can be measured with a high precision. **Biovision** is a good tool for the investigation of biological produced fruit and vegetables.

CONFIGURATION:

Biovision in CN mode

SAMPLE:

2 mg vegetables, solid



The analyses were performed in cooperation with Labor Friedle GmbH, Regensburg, Germany.

Elementar Analysensysteme GmbH

Elementar-Straße 1

63505 Langenselbold (Germany)

phone: +49 (0) 6184 9393-0

info@elementar.de | www.elementar.de

