



AUTHENTICITY



VERIFICATION



ASSURANCE

**FOOD FINGERPRINTING**

# MAKING THE DIFFERENCE

VERIFY FOOD ORIGIN & AUTHENTICITY WITH ISOTOPE ANALYSIS

A Partner of SGS



Consumers expect food and drink to be safe, of high quality, and to originate from the claimed country of origin. Authenticity is an essential part of integrity for any business. Food fraud is on the rise. You must be certain ingredients reflect their stated origin and composition to protect your reputation.

Is your olive oil really from Italy?  
Are the oranges in your juice truly unsweetened?

Fraud is an increasing problem at every stage of the food and beverage supply chain. Olive oil, milk, honey, orange juice, fish, coffee and herbs and spices, such as vanilla and saffron, are all commonly adulterated or misrepresented for financial gain. Recent figures from the EU have shown exponential growth in cases of mislabeling, falsified or absent documentation, use of unapproved processes, and the replacement, dilution or addition to a product.<sup>1</sup>

To defend against food fraud and safeguard their reputation, food and beverage businesses need a way to verify the authenticity of the ingredients they use.

### PROTECT FOOD INTEGRITY – ISOTOPE ANALYSIS

The isotope fingerprint of an ingredient is unique. Its signature comprises the ratios of five key elements – carbon, nitrogen, oxygen, hydrogen and sulfur – each affected by the environmental conditions specific to its place of origin. This signature is therefore unique to the ingredient, its site of production and any processing it has undergone.

### ORIGIN VERIFICATION

Ingredients from domestic suppliers or specific geographical regions often command a premium price, making substitution a common tactic of food fraudsters.

The isotope fingerprint of an ingredient test sample can be assessed with reference to either an authenticated reference sample from the same

geographical area or against a long-term monitoring database. Our tailor-made solution for origin verification is often the preferred method as it delivers fast, cost-efficient results with lower margins of error.

### AUTHENTICITY TESTING

The discrepancy between supply and demand of premium-priced products, such as vanillin, honey and saffron, leaves plenty of opportunity for adulteration. Natural ingredients can be partly or completely substituted with low-cost synthetic alternatives but not identified on the label.

Analysis of the isotope fingerprint allows clear identification of fake and genuine products, while also identifying the natural ingredient's place of origin.

### DETECTION OF UNDECLARED ADDITIVES

A common practice in food fraud is to improve some qualitative characteristics of a product while keeping the claims of natural and authentic. The undeclared addition of sugar in juices, honey, maple syrup and wine, dilution of juices and wines with water, alcohol manipulation of spirits like tequila and rum, and the use of industrial CO<sub>2</sub> in sparkling water and drinks, are just a few examples where an isotope fingerprint provides a solid and standardized solution.

### BENEFITS OF ISOTOPE RATIO MASS SPECTROMETRY

- Prevention of food fraud
- Risk mitigation

## TRANSPARENCY

- Full control of your supply chain
- Strengthening of your reputation
- Increased customer loyalty

### TECHNOLOGY & INNOVATION

Innovation is at the heart of the way we do business. We embrace new technologies that deliver knowledge, insight, transparency and efficiency to help you to manage quality, safety and profitability.




#### All Species ID

A powerful DNA NGS tool for authenticity testing and identification of ingredients, pathogens, and allergens.

#### SGS Digicomply

Transform the big data of compliance information into user-friendly actionable knowledge.

### SGS BENEFITS

-  Global Network
-  Rapid turnaround times
-  Expertise

### CONTACT US

-  [food@sgs.com](mailto:food@sgs.com)
-  [www.sgs.com/foodsafety](http://www.sgs.com/foodsafety)
-  [SGS Agriculture & Food](#)

<sup>1</sup>[https://ec.europa.eu/food/sites/food/files/safety/docs/food-fraud\\_network\\_activity\\_report\\_2017.pdf](https://ec.europa.eu/food/sites/food/files/safety/docs/food-fraud_network_activity_report_2017.pdf)