

# The **Isotope Fingerprints** and What They Tell Us for Food & Beverage

History can't hide from the Isotope Hunter. Geography, geology and growth conditions of foods, fibers, liquids or stone are embedded in their unique isotope fingerprints. Trace your sample history with the Thermo Scientific™ Isotope Ratio Mass Spectrometry portfolio.

## <sup>13</sup>Carbon

**Interprets:** Botanical origin C3, C4 and CAM photosynthesis  
**Identifies:** Adulteration (e.g. sweetening with cheap sugar)  
**Foods Affected:** Honey, liquor, wine, olive oil, butter and flavors

## <sup>18</sup>Oxygen

**Interprets:** Local-regional rainfall geographical area  
**Identifies:** Dilution of beverages, and place of product origin  
**Foods Affected:** Coffee, wine, liquor, water, sugar, animal meat and flavors

## <sup>15</sup>Nitrogen

**Interprets:** Soil processes, plant fertilizer processes  
**Identifies:** Mislabeling (organic vs. non-organic)  
**Foods Affected:** Fruits, vegetables and animal meat

## <sup>34</sup>Sulfur

**Interprets:** Local soil conditions, proximity to shoreline  
**Identifies:** Product origin  
**Foods Affected:** Fruits, vegetables, animal meat and honey

## <sup>2</sup>Hydrogen

**Interprets:** Local-regional rainfall geographical area  
**Identifies:** Dilution of beverages, product origin  
**Foods Affected:** Coffee, wine, liquor, water, sugar, animal meat and flavors

Detecting <sup>13</sup>Clues, tracking <sup>18</sup>Origin, unraveling <sup>2</sup>History with isotope fingerprints  
Investigate now [thermofisher.com/IsotopeFingerprints](https://thermofisher.com/IsotopeFingerprints)

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