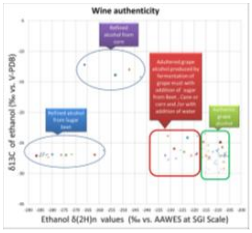
SG ISOTECH D.O.O PANCEVO (Republic of Serbia)

SG Isotech

AUTHENFAKETIC

Area of expertise: SG Isotech is specialized in the field of authentication, verification and geographical identification of wine, strong spirits, honey, fruit juices/concentrates and other food products from plant origin using innovative isotopic methodologies, which are based on the determination of stable isotopes of light elements such as Hydrogen, Carbon, Oxygen and conventional methods of analysis.

The company has developed and patented a new isotope method for analysis of wine, grape must, honey, fruit juices/concentrates and alcoholic beverages – ***Ethanol Isotope Measurement – Isotope Ratio Mass Spectrometry (EIM-IRMS®)*** and has implemented in quality control system for detection of illegal production practices, determination of geographical origin and differentiation of botanical origin of raw material used in winemaking and alcoholic beverages sectors, sugar/confectionary, honey production as well as fruit juices industry.
In 2021 the CEO of the company as a technical expert of the Serbian delegation of the OIV (International Organization of Vine and Wine) has presented an innovative method EIM-IRMS® which was supported by other country-members as a draft for new International resolution for wine and grape juice authenticity.



The advantages of EIM-IRMS® method:

- ✓ The developed EIM-IRMS® isotopic methodology is unique method which is capable to precisely determinate a presence of C3-/C4-sugar addition in food and beverages composition;
- ✓ EIM-IRMS® could distinguish origin of added sugar from C3-plant base;
- ✓ The method could detect an addition of water in final product or before fermentation (e.g. wine);
- ✓ The EIM-IRMS® has proven to be much faster (time of measurement 7-8 min per sample) and significantly more accurate (easy to interpret results) than existed methods used for wine, honey and fruit juices authenticity testing;
- ✓ Our innovation is able to provide an unique "Isotopic Product Fingerprint" of strong spirits as well, which is impossible to replicate.

The EIM-IRMS® is based on measurement of relative ratio of non-exchangeable hydrogen stable isotopes in ethanol previously quantitatively extracted from samples (or fermented samples) and used to analyze and certify the authenticity and origin of wine, honey, fruit juice/concentrates and strong spirits products. Obtained results for a specific sample are always precise, repeatable and provide a distinct "Isotopic Product Fingerprint".

The team of the company: Our team members are dipl. engineers and PhDs in the field of a food and alcoholic beverages technologies with more than 16 years of experience in a quality control system and stable isotope analysis on food composition using different kind of isotopic analytical instruments and methodologies.

Facility (ANA LAB D.O.O – Specialized Testing Laboratory): Our laboratory facility under name ANA LAB D.O.O is located in Serbia. The laboratory has all modern analytical instrumental equipment based on mass spectrometry and chromatography for a realization of research and industrial needs (requests) through an individual designed authenticity programs of testing. ANA LAB is currently under way to be accredited according to ISO/IEC 17025 - General requirements for the competence of testing and calibration laboratories and ISO/IEC 17065 - Requirements for bodies certifying products, processes and services.

Current position in EU projects: We are participating as an industrial partner in the Research and Innovation Staff Exchange (H2020-MSCA-RISE-2020) project (Marie Sklodowska-Curie Actions) on the period of 2021-2024. Our mission in that project which is named "SuChAQuality" is to provide experimental studies of sugars, honey and gelatins from different botanical origin using isotopic analytical instruments and innovative methods. We plan to join the EU Cost Actions activities CA 20128 on the topic of "Promoting Innovation of fermented food".

International cooperation: At this stage, we have scientific cooperation with 5 specialized isotopic laboratories in the world: US, Austria, Hungary, China and Russia. In the framework of the H2020-MSCA-RISE-2020 project, we have strong research connections with academic, SMEs partners and producers from Turkey, Poland, Germany, Pakistan, UK, Chile and South Africa.