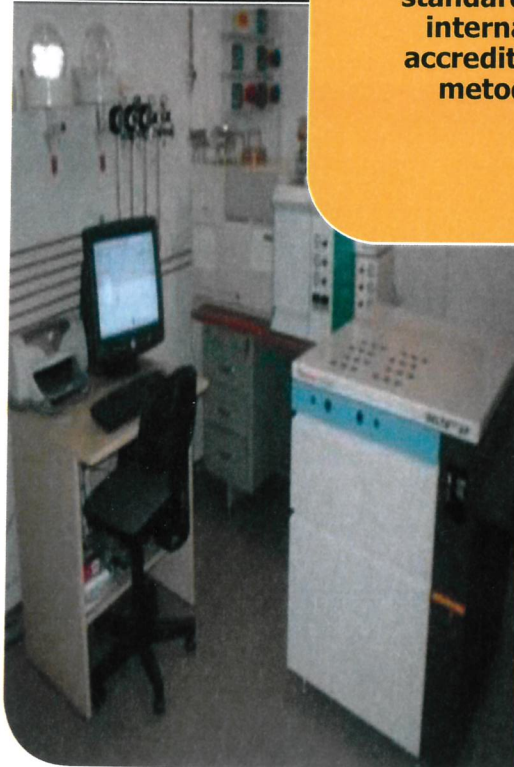


**Espressione dei risultati  
isotopici, taratura,  
standard interni e  
internazionali,  
accreditamento e  
metodologie**





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**ACCREDITATION OF STABLE ISOTOPE RATIO METHODS: GUIDELINES FOR THE IMPLEMENTATION OF A QUALITY SYSTEM ACCORDING TO ISO/IEC 17025:1999**

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The implementation of stable isotope applications in official food analysis began in 1990 and several types of isotopic analysis are now standard or validated methods for testing the authenticity of food products.

These methods, carried out using SNIF-2H-NMR (Site-Specific Natural Isotope Fractionation-Nuclear Magnetic Resonance) and/or IRMS (Isotope Ratio Mass Spectrometry), are based on measurement of the stable isotope ratios (i.e. H/1H, <sup>13</sup>C/<sup>12</sup>C, <sup>18</sup>O/<sup>16</sup>O, <sup>15</sup>N/<sup>14</sup>N,) of a product or specific component, such as an ingredient or target molecule in the product. They provide information on its botanical and geographical origin.

Public and private laboratories that wish to apply these methodologies for control purposes need to demonstrate the reliability of the analytical data through accreditation, which is a process certifying competency, authority or credibility.

This study will offer guidelines on implementing a quality system for the accreditation of methods for stable isotope ratio analysis, based on ISO standard 17025. The focus will be on determining repeatability, linearity and uncertainty. Moreover, issues related to accuracy, reference materials, proficiency tests and some unclear areas of official standards will be tackled, and suggestions to improve the effectiveness of this analysis will be provided.