



Bringing Scientific & Technical  
Resources to the African Continent

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## **FOOD AUTHENTICITY TESTING BY NUCLEAR MAGNETIC RESONANCE (NMR TRAINING) (4<sup>th</sup> – 8<sup>th</sup> MARCH 2024)**

Food authenticity testing using Nuclear Magnetic Resonance (NMR) is a powerful technique to verify the composition and quality of food products. NMR spectroscopy can be applied to analyses the chemical composition of food items, including the identification and quantification of various components. Here is a general overview of how NMR can be used for food authenticity testing, along with some key considerations for sampling analysis:

<b>DAY 1</b>	<b>EVENTS</b>
<b>09.00-09.30</b>	Registration and climate setting
<b>09.30-10.00</b>	Overview and introduction to NMR
<b>10.00-10.30</b>	<i>Tea Break</i>
<b>11.00-12.30</b>	How to Utilize a high-resolution NMR spectrometer
<b>12.30-14.00</b>	<i>Lunch Break</i>
<b>14.00-16.30</b>	NMR Instrumentation & Calibration the instrument for accuracy Choice of the appropriate NMR probe (solid/liquid).
<b>DAY 2</b>	
<b>9.00-10.30</b>	How to obtain representative samples from various sources
<b>10.30-11.00</b>	<i>Tea Break</i>
<b>11.00-12.30</b>	1. Sample Collection & How to Ensure an adequate sample size? Sample preservation and how to store samples to prevent degradation
<b>12.30-14.00</b>	<i>Lunch Break</i>
<b>14.00-16.30</b>	2. Sample Preparation & Homogenization
<b>DAY 3</b>	
<b>9.00-10.30</b>	Extraction compounds if necessary
<b>10.30-11.00</b>	<i>Tea Break</i>
<b>11.00-12.30</b>	Drying samples to reduce interference (if applicable)
<b>12.30-14.00</b>	<i>Lunch Break</i>
<b>14.00-16.30</b>	How to Select the appropriate NMR experiments
<b>DAY 4</b>	

<b>9.00-10.30</b>	High Resolution NMR analysis for Coffee Adulteration ( <b>Practical's</b> )	
<b>10.30-11.00</b>	<i>Tea Break</i>	
<b>11.00-12.30</b>	Honey Adulteration ( <b>Practical's</b> )	
<b>12.30-14.00</b>	<i>Lunch Break</i>	
<b>14.00-15.30</b>	Non-alcoholic beverages Adulteration analysis ( <b>Practical's</b> ) High Resolution NMR Meat Adulteration analysis ( <b>Practical's</b> )	
<b>DAY 5</b>		
<b>9.00-10.30</b>	Data Acquisition Process NMR data through Fourier transformation, baseline correction, and phasing	
<b>10.30-11.00</b>	<i>Tea Break</i>	
<b>11.00-12.30</b>	Interpret NMR spectra to identify and quantify compounds Compare acquired data to reference spectra and databases. Apply statistical analysis and multivariate methods for authenticity assessment	
<b>12.30-14.00</b>	<i>Lunch Break</i>	
<b>14.00-15.00</b>	Directors speech and issue of certificates	
<b>DATES</b>	<b>COST</b>	<b>VENUE</b>
<b>4<sup>th</sup> – 8<sup>th</sup> March 2024</b> <b>Deadline: 20<sup>th</sup> February 2024</b>	<b>KES: 92,800.00 or USD 928.00</b>	<b>NAIROBI</b>