Food fraud and adulteration, though driven by economic gain, can also present a significant risk to human health. There have been many examples of this throughout history. In recent times, notable examples include melamine in milk powder, Sudan dyes in chilli powder and methanol in counterfeit spirits. The global occurrence of such incidents may cause negative impacts on international trade, reputational damage to companies or entire food sectors and, at worst, serious illness or fatalities to consumers.

Effective systems to prevent or control such incidents require robust analytical methods to detect adulteration or contamination of foods, and to provide information on their origin. The required methods encompass both sophisticated techniques capable of providing essential information such as the identity and amount of adulterants present or the probable origin of a food product, that allow follow-up actions to deal with the issue, and cost-effective, screening, ‘point of contact’ methods that can be deployed in the field (on the food production line or supply chain) to provide rapid answers regarding the safety or authenticity of food raw materials or products. A combination of these techniques provides Member States with effective measures to protect the public from fraud, mitigate the disruptive impact of emergencies affecting the food supply chain, and minimise disruption to trade in agricultural commodities.

A training course on the use of profiling/fingerprinting techniques to determine food origin and verify food authenticity will be open for remote access from 16 – 27 August 2021 using the virtual platform Nucleus. The objective of this virtual training course is to enhance the capabilities of laboratory personnel in the application of rapid, untargeted screening methods, enabling Member States to respond to food safety-related incidents and emergencies and to improve their food control systems.

The training will employ recorded lectures, video presentations of laboratory procedures and ‘live’ online question and answer sessions. Selected applications will be presented to provide the participants with a solid basic to intermediate knowledge of techniques including:

- Nuclear magnetic resonance spectroscopy (NMR);
- Ion mobility spectrometry (IMS);
- Fourier transform infrared spectroscopy (FTIR), including attenuated total reflectance (FTIR-ATR);
- Multi-spectral imaging (MSI);
- Spectral data processing and chemometrics to enable interpretation of the data.

Examples of standard operating procedures and method protocols will be provided to course participants, to foster adoption of the demonstrated methods in their own laboratories.

**Participation**

Personnel from food control or research laboratories in IAEA Member States interacting with the Food and Environmental Protection subprogramme in the field of testing for food authenticity and geographical origin are eligible to apply. All persons wishing to participate in the event must be designated by an IAEA Member State. Information and nomination details are being disseminated to IAEA Member State National Authorities (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) through official channels. The relevant participation application form should be forwarded to the competent national authority for onward transmission to the IAEA by 1 June 2021.