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Behavioral based food safety: Understanding the human factor in implementing an effective food safety management system

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Management systems are based on the cycle of continual improvement, PDCA (plan do check act). In a food safety management system much expertise goes into the “Plan” phase: Planning our buildings and equipment establishing pre-requisite programs (PRPs) and utilizing HACCP methodology to define the food safety plan. We then move on to the “Do” phase and we expect every detail of our plan to be executed. However, when we “Check” if everyone is doing what was planned we are confronted with a mysterious gap. We call it “The Implementation Gap”. According to PDCA we must now “Act” to improve the “Plan” so that in the future everybody will “Do” as planned! Often, the organizational reaction to “The Gap” is to update procedures to realign them with what is actually being done and/or to retrain the employees. Neither of the actions can truly generate improvement because they do not address the root cause: Why are people not performing as planned? Our team has developed a behavioral model identifying four root causes of deviation between written instructions and actual behavior. By carefully observing thousands of non-conforming incidents we have cracked the mystery and can provide the tools to close the “Implementation Gap”. We call this model MACK: Motivation, Awareness, Capability and Knowledge. We can prove that every incident involving people behaving in violation of a written decision is the result of a lack in one or more of these basic requirements. In this presentation we will present the model provide gap closing tools and present case study success stories.

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Srisotopic characterization of Nîmes PDO olive oils (France) and Moroccan olive oils: Application for geographical traceability and recognition

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Recent works have proposed identification of the geographical origin of some food products through the analysis of their strontium (Sr) isotopes signature. Sr is a natural element found in rocks, soil and water in varying concentrations, on the order of 300 µg.g⁻¹. The distribution of its isotopes (assessed through monitoring of 87Sr/86Sr ratios) in these reservoirs is specific of the geological environment (type of rock, age, geological history). The Sr element is also found in plants although at generally lower levels (on the order of 20 µg.g⁻¹). Based on the assumption that the transfer of Sr from soil to plants takes place without changing isotope ratios, various approaches have been proposed to identify the geographical origin of plant products by determining their 87Sr/86Sr ratio, which might reflect the values observed in the soil. The purpose of this study is to assess the feasibility of Sr extraction from a complex matrix such as olive oil, and to carry out isotopic measurements to implement a geographical identification approach of olive oils using Sr isotopes. Existing protocols for purification of Sr are unsuitable due to the viscosity, high organic load and low strontium content of the lipid matrix (1.5 ng g⁻¹ and 50 ng g⁻¹) coupled with the hydrophilic nature of Sr. Therefore, the first approach proposed here involved setting up a methodology for olive oil treatment for Sr extraction. After validation, the protocol is applied to test a geographical identification of a PDO Nîmes’ oil by comparison with two Moroccan oils.

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