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Clinical Features of Food Analysis

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Food analysis could be a numerous and knowledge domain field of analysis that features a vital health, social and economic impact. It aims to characterize food product in terms of chemical composition, traceability, safety, quality, sensory perception and biological process price. Food analysis approaches square measure utilized by trade, government/control agencies and world. The molecular composition of a nutrient is usually terribly advanced and depends on many factors, together with genetic and geographical origin, environmental/climatological conditions, and the kind of farming, breeding and process practices and addition of adulterants or presence of contaminants. Food scientists and technologists confirm the chemical composition and physical characteristics of foods habitually as a part of their quality management, development, or analysis activities. Consumer, government, and food trade concern for food quality and safety has redoubled the importance of analyses that confirm composition and demanding product characteristics.

To with success base selections on results of any analysis, one should properly conduct all 3 major steps within the analysis: choose and prepare samples, perform the assay, and calculate and interpret the results. The selection of study methodology is typically supported the target of the analysis, characteristics of the strategy itself, and therefore the food matrix concerned. Validation of the strategy is very important, as is that the use of ordinary reference materials to make sure quality results. Speedy strategies used for quality assessment during a production facility could also be less correct however a lot of quicker than official strategies used for nutrition labeling. Supported strategies for the chemical analyses of foods are compiled and revealed by varied scientific organizations. Such official strategies afford comparison of results between completely different laboratories and for analysis of recent or a lot of speedy procedures. Other more specific applications in food analysis have also seen a great development as a result of the combination of several analytical advances that have been put together. A good example is the study of the geographical origin of foods via the analyses of stable isotope ratio of light elements or the meta-analysis of the effects of pasteurization on milk vitamins. This is also the case of the analysis of the volatile fraction of foods, which is known to have a crucial effect on food quality and acceptance. The study of the volatile fraction of food or beverage requires analytical methods and technologies able not only to evaluate its composition exhaustively but also to monitor variations of its profile and to detect trace components characterizing the food being investigated. The strategies of analysis have changed significantly over the last 15–20 years because of the introduction of new approaches, in particular: (i) solventless sample preparation techniques; (ii) fast gas chromatography and related techniques; (iii) new analytical techniques, such as comprehensive gas chromatography (GC); (iv) new operative strategies based on approaches developed for other fields and applied to food analysis; (v) data elaboration strategies producing a higher level of information. Chiral analysis has also seen an important growing in food analysis, since chiral methods can be used to study and characterize foods and beverages through the enantiomeric separation of different food compounds such as amino acids, pesticides, and polyphenols. Another example is the investigation on food texture in which physical characteristics perceived by the senses are investigated. Research in this area has evolved tremendously in the last decade based on multidisciplinary approaches that encompass chemistry, physics, physiology, and psychology, to study fracture of food, the sounds it makes during biting and chewing, its microstructure, muscle movements during mastication, swallowing, and acceptability.

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