

2nd International Conference on**Food Safety and Regulatory Measures**

June 06-08, 2016 London, UK

Food safety evaluation and food waste management – An Indian perspective**Ravi Teja Mandapaka**

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Food safety is nothing but utilizing various resources in order to ensure that all types of foods are properly started, prepared and preserved. Hence, they are safe for consumption. Internal auditing should be conducted on a repeat to make external auditing a smooth running process. The priority should lie in maximizing food sales, and giving away or selling foods past their prime involved risks that may undermine sales. Times have moved on towards reaching perfection with technology being updated almost every passing hour in the twenty four. This brings to a logical conclusion that there're many great ways through which we can reduce the total food waste through innovation and research as it gives us a chance to take the best available quarantine measures in preventing spoilage and wastage of food. We should only target on producing food when necessary and it is our duty to ensure 'tis decrement of over production. Producing food and generating efficient waste invariably and internally contaminate the environment. The present study discusses about the Food Safety issue, emphasizes the need of international food safety standards and their implementation in the food processing units to ensure the maximum safety and presses on the importance of effective waste management.

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Milk is one of the most consumed foods in the world and one of the most likely to suffer adulteration by adding water or even chemical substances which represents a serious risk to consumer health, due to this the development of more effective tools for the analysis of milk has been the subject of constant studies. Among the characteristics of milk, the aroma is one of the most important and can say much about the quality of the product. The electronic nose has demonstrated to be a promising tool for the analysis of flavorings and similar to human olfaction. It uses an array of chemical sensors with partial selectivity associated with pattern recognition powerful techniques. Among them the artificial neural networks have shown satisfactory performance and efficiency, being the most used for discrimination of aromatic profiles. This paper presents the performance of a portable electronic nose designed for the quality evaluation of milk when it is subjected to adulteration by chemicals such as formaldehyde, sodium hydroxide and urea. The differential of this device compared to hallowed techniques of physicochemical analysis is the possibility of obtaining real-time response and adds portability, low cost and simple interface. For 2 months, we analyzed 5 commercial brands of milk and from these, samples were separated containing different proportions of the contaminants cited, altogether 40 samples were analyzed. For the recognition and classification of each contaminant, we used a neural network multilayer perceptron. In addition, other techniques facilitated the development of neural network such as the bootstrap resample used to create a network training data set from the original samples. Network parameters were adjusted using sequential simplex optimization and the reliability of the results was analyzed through statistic tools. The neural network showed satisfactory performance recognizing all contaminants from the set of test samples constituted only by the original samples. Samples used for training obtained from the bootstrap. 95% were correctly classified as 97% of validation samples. This demonstrates that the network is able to learn to identify the aromatic profile of each contaminant. The advantage observed by the incorporation of artificial neural networks to the electronic nose is the possibility to circumvent the effects of noisy signals and interferences which the electrical measurements are subjected. This is the first time that the electronic nose is applied to discrimination milk when subjected to adulteration by various types of contaminants which makes it an innovative tool for the dairy industry.

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