

Predictive Modelling Approaches in Food Processing and Safety

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Abstract : Food processing is an activity across the globe that help in better handling of agricultural produce, including dairy, meat, and fish. The operations carried out in the food industry includes raw material quality authenticity; sorting and grading; processing into various products using thermal treatments - heating, freezing, and chilling; packaging; and storage at the appropriate temperature to maximize the shelf life of the products. All this is done to safeguard the food products and to ensure the distribution up to the consumer. The approaches to develop predictive models based on mathematical or statistical tools or empirical models' development has been reported for various milk processing activities, including plant maintenance and wastage. Recently AI is the key factor for the fourth industrial revolution. AI plays a vital role in the food industry, not only in quality and food security but also in different areas such as manufacturing, packaging, and cleaning. A new conceptual model was developed, which shows that smaller sample size as only spectra would be required to predict the other values hence leads to saving on raw materials and chemicals otherwise used for experimentation during the research and new product development activity. It would be a futuristic approach if these tools can be further clubbed with the mobile phones through some software development for their real time application in the field for quality check and traceability of the product.

Keywords : predictive modlleing, ann, ai, food

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