

New Theoretical and Practical Aspects of the Frying Process

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Abstract

Deep frying process is very complex system due to the combination of heat and mass transfer between food and frying medium. The system becomes more complicated as the frying operation goes on because the composition of the food being fried and the frying medium is changing continuously due to the progressive deterioration of the frying medium. Apart from a variety of chemical reactions occurring several changes take place in the frying food such as gelatinisation of starch, denaturation of protein, and decrease of moisture. These changes bring about swelling of the product, formation of a crusty layer, appearance of golden colour, good texture and taste. The precise control of fryer makes these physical and chemical changes in the frying food to convert it into a desirable finished product.

The paper will cover various types of reactions occurring in food frying operation and possible mechanisms, a new realistic method - OSET index for measuring heat stability of frying oils, and protective behaviour of the substances that enhance the frying stability of oils.