Approaches To Shelf Lıfe Detaıls In Food And Accelerated Shelf Lıfe Method

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In our developing world, people's habits change day by day. With the tendency towards the ready-to-eat food sector and the rapid increase of the world population, the production quantity and product variety in the food industry also increased day by day.

The concept of shelf life has come into being because of the immediate sale and consumption of the food produced by this increase in production and product diversity (1). The shelf life of a food can be defined as the time when the food is safe to consume or when it has an acceptable quality for consumers (2). Shelf life of packaged product, quality characteristics under recommended conditions without significant changes, not to harm the health of a form of technological envisaged to pass to be transmitted to the consumer, physical, chemical and microbiological withstand periods (3). They are classified as perishable, perishable and longevity according to their degradability. Rapidly degradable foods are those that can break down considerably within 60 days and lose their nutritional value and their ability to consume. In deteriorating foods, this process ranges from 60 days to 6 months, 6 months longer in long-life foods (4). Environmental factors that determine the shelf life of foods are temperature, relative humidity, light intensity and oxygen partial pressures, compositional factors are pH, water activity, oxidation-reduction potential and microbial charge (8).

The aim of food shelf life assessment is to assess and document the period in where the food product maintains its intended physical, chemical and microbiological quality and properties. Food deterioration can be accelerated by subjecting the food to controlled environments, followed by then quality evaluation and shelf life estimation (5). Short and long term methods are applied in shelf life calculation. The long-term method is to determine changes in typical properties of the same food as a function of time in different or identical packaging under different storage conditions (1). The analyzes that will be the quality criteria for the food should be determined according to the characteristics of the food and the characteristics of the food. Applicable products of this method are products with short shelf life such as pastry, dairy products, meat products and ready meals (5). This method is time-consuming and laborious, but the method by which the most sensitive results are obtained (1). The short-term method is used as an accelerated estimation method. To be able to apply this method, the first thing to be predicted is types of degradation that limit the shelf life of food. In this method, the food is stored at higher temperatures using the Arrhenius correlation or the Q10 approach and the quality change is monitored and the shelf life is estimated at the lower actual temperature (6). The method is particularly preferred because it gives rapid knowledge of pre-shelf life, in addition to microbiological safety during the product development phase (2). Accelerated stability cabinets for estimation method are used. Applicable products of this method are frozen and dried products stored in the refrigerator (5).

A shelf life study should be an objective, methodical tool to determine the reasonable length of a food product without substantial change in quality. A separate study is required for each food product type (7). Short-term accelerated shelf-life studies should be verified by parallel operation with a long-term method. In order to minimize faults, it is necessary to choose the correct factor of deterioration, to make experiments in different storage conditions and to

choose sensitive analysis method for food product. If accurate parameters are determined by the accelerated shelf-life method, long shelf-life runs will be completed in a short time.