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Commercial smoothies containing fruit and fermented milk: stability of quality attributes during storage

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There is an expanding demand of consumers for natural food products that are fresh or minimally processed and convenient [1]. Smoothies are blended beverages containing fruits, fruit purées, pulps and/or fruit juices, yoghurt or milk that preserve the desirable characteristics of fruits [2]. The effect of processing and storage on commercial smoothies could affect quality attributes, like color and acidity, important parameters for the consumer acceptability of the product [3].

The aim of this work was to analyze the physical and chemical properties associated with quality attributes, in different smoothie formulations available in the Portuguese market (n=16). Samples were divided into five groups, according to composition. The total titratable acidity, pH value and soluble solid content were determined using standard methods (NP EN 12147:1999, NP EN 1132:1996 and NP EN 12143:1999, respectively). The color was measured using a colorimeter, expressed in CIE units (L*, a*, b*) and converted to hue angle (h^0) and chroma (C*). Analyses were performed into three moments after purchase (0, 14 and 21 days).

Data showed that there were no significant differences (p=0,678) in acidity along storage, although differences in chemical composition were observed (the group of "juices, purées and pulps" had the highest malic acid content at the end of the storage). There was an increasing trend for soluble solid content along storage time, that could be related with the hydrolysis of polysaccharides into monosaccharides (no statistical significance p>0,05). The samples containing fermented milk and fruit presented higher L* compared with fruit smoothies. There were no significant differences (p>0,05) for L*, C* and h^0 along storage.

In conclusion, data showed that the quality attributes analyzed in this study, were retained during storage.

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