Data Mining on MRI-Computational Texture Features to Predict Sensory Characteristics in Ham

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Abstract

In this study, data mining technique was applied on computational texture features obtained from the analysis of magnetic resonance imaging (MRI) of hams, with the main objective of determining sensory attributes of dry-cured ham non-destructively. For that, fresh and dry-cured hams were scanned and then the MRI images were analyzed by three methods of computational texture features. Data mining was applied on the computational texture features from fresh and dry-cured hams for obtaining prediction equations of the sensory attributes of dry-cured hams. The correlation coefficient (R) was used to analyze the results. Accurate prediction was found for 13 sensory attributes as a function of computational texture features of fresh ham, and three from dry-cured ham. In addition, a sensory analysis of dry-cured hams was also carried out to validate the predicted results. Similar values were found between the predicted attributes and those determined by sensory analysis. Thus, it is possible to predict sensory attributes of dry-cured hams by applying data mining on computational texture features of MRI from fresh and dry cured hams. This supposes the chance of determining non destructively sensory attributes of dry-cured hams, even before the curing process starts.