

Correlation between Electromyographic and Textural Parameters for Different Textured Indian Foods Using Principal Component Analysis

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Abstract : The objective of this study was to check whether there is any relationship between electromyographic (EMG) and textural parameters during food texture evaluation. In this study, a total of eighteen mastication variables were measured for entire mastication, per chew mastication and three different stages of mastication (viz. early, middle and late) by EMG for five different foods using eight human subjects. Cluster analysis was used to reduce the number of mastication variables from 18 to 5, so that principal component analysis (PCA) could be applied on them. The PCA further resulted in two meaningful principal components. The principal component scores for each food were measured and correlated with five textural parameters (viz. hardness, cohesiveness, chewiness, gumminess and adhesiveness). Correlation coefficients were found to be statistically significant ($p < 0.10$) for cohesiveness and adhesiveness while if we reduce the significance level ($p < 0.20$) then chewiness also showed correlation with mastication parameters.

Keywords : electromyography, mastication, sensory, texture

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