

Predicting Sensory Quality of Longjing Tea on the Basis of Physiochemical Data

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Sensory evaluation can provide integrated, direct measurements of the perceived quality of food products. However, a sensory panel is subjective and suffers from inconsistency and inaccuracy. In this paper, we propose a sensory evaluation simulation model for Longjing tea (a Chinese brand of green tea). The physiochemical quality indicators of Longjing tea were determined by instrumental analysis, including color, aroma, and taste. Meanwhile, the sensory quality of the tea was evaluated by an expert sensory panel. An artificial neural network was conducted to approximately predict sensory evaluation scores on the basis of physiochemical data. The results showed that physiochemical factors, including hue, fluorescence peak 5, hue chromascale, b, L, 3-(methylthio) propionaldehyde, α -terpineol, linalool, dimethyl sulfide, total aroma value, caffeine, quinic acid, theanin, gallic acid and total catechins were best correlated with sensory evaluation scores. Furthermore, physiochemical features that were chosen according to important factor weights were used to classify Longjing tea into two grades. Experimental results demonstrated that instrumental analysis could be complementarily used in the evaluation and control of sensory quality by establishing a reasonable sensory-instrument correlation and human-simulated predictive model.

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