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Modeling of Consumers' Preferences for Regular Coffee Samples and Its Application to Product Design

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A large-scale consumer test was made seeking preferences for regular coffee (RC). Based on preferences for 12 RC samples with various blend ratios of coffee beans, panels were divided into four preference clusters. Then, 88 RC samples were prepared and preferences against them were tested for clustered panels. To predict preference scores for each cluster, highly accurate models were constructed by applying a fuzzy neural network. We then conducted reverse estimation for optimum preference blends on each cluster by applying a genetic algorithm. The RC samples of optimum preference blends identified above were prepared and preference tests were again performed for the same panels. Those samples showed good preference scores and good agreement with predictions by models for each cluster. Consequently, this approach, consisting of consumer clustering and modeling for each cluster, provides an excellent tool for the rapid and efficient development of coffee products.

Keywords: [food engineering](#), [preference modeling](#), [coffee](#), [genetic algorithm](#), [fuzzy neural network](#), [consumer clustering](#)



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