



Consumer preferences for black coffee are spread over a wide range of brew strengths and extraction yields

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Rationale

The Coffee Brewing Control Chart is a popular tool in the coffee industry to predict the flavor of coffee based on total dissolved solids (TDS) and percent extraction from the grounds (PE). Brewing water temperature (BT) is also believed to play a role in determining the flavor of brewed coffee. In this study, we investigated the effects of these 3 factors on the consumer acceptability of a medium roast, single origin coffee.

Methods

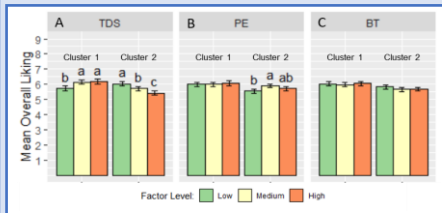
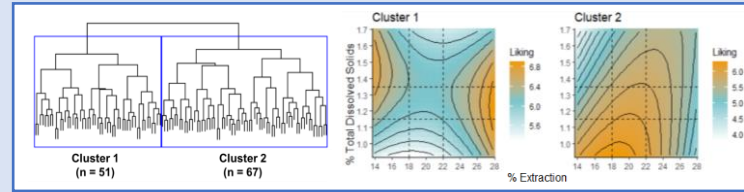
- 118 consumers of black coffee evaluated 27 coffees that varied in TDS, PE and BT over 3 tasting sessions.
- Coffee: Organic Honduras Cosma, Strictly High Grown, Medium Roast
- For each coffee, consumers rated overall liking using the 9-point hedonic scale; evaluated the adequacy of serving temperature, flavor intensity, acidity and mouthfeel using 5-point just-about-right scales; and described the flavor of the coffee using a list of 17 attributes.
- Consumer preference clustering was conducted and mean cluster liking scores were mapped to the BCC using response surface methodology. External preference mapping and penalty analysis were used to find drivers of liking for the preference clusters.

Conclusions & Perspectives

This study showed that TDS and PE were drivers of Northern California consumer preferences for black coffee. This study also corroborated findings from prior studies which found that brewing temperature does not have a significant impact on coffee flavor nor acceptability if extraction profile is controlled for. Our findings will be used to revisit the concept of 'ideality' in a redesign of the Coffee Brewing Control Chart.

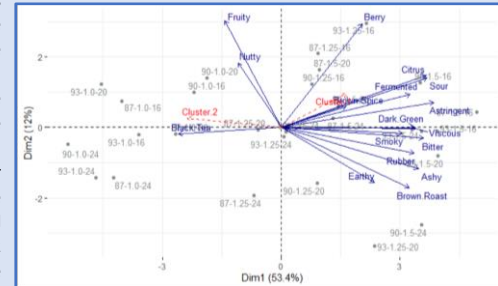
Results

- Consumer preference clustering revealed two distinct groups of consumers who varied in their relative liking scores given to the different extractions, mostly as a function of TDS.
- Response surface methodology produced saddle and dome-shaped curves, respectively, to describe the liking patterns of the two clusters based on TDS and PE.



- Of the three variables of interest, brewing water temperature (BT) was the only one that displayed no significant impact on liking in either of the two identified clusters.

- External preference mapping was used to relate cluster liking trends to attribute intensities for the coffees collected via descriptive analysis panel.
- The first dimension separates the coffees based on target TDS value (coffees labeled by Temp-TDS-PE)
- Cluster 1 was defined by higher liking of products with more intense flavors such as acidity and brown roast, while Cluster 2 favored coffees with a more subtle profile while disliking coffees with high acidity and bitterness.



References

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