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Use of open-ended question methodology to identify drivers of liking of concentrated blackberry juices

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The application of membrane technology represents an alternative to thermal processes that can degrade bioactive compounds present in fruit juices. This work aimed to evaluate the effect of different membrane technological routes on the sensory acceptability of blackberry juice. Seven samples (I-centrifuged, II-clarified by microfiltration, III-centrifuged and concentrated by reverse osmosis (RO), IV-clarified and concentrated by RO, V-centrifuged and concentrated by osmotic evaporation (OE), VI-clarified and concentrate by OE and VII-pasteurized) were presented to 96 consumers, who were asked to score their overall liking using a 9-point hedonic scale and to provide up to four words to describe each sample, using the open-ended question methodology. The mean overall liking scores ranged from 4.7 to 6.9, presenting highly significant ($p<0.001$) differences. Consumers' descriptions of the samples were highly related to differences on juices characteristics ($\chi 2 = 471.07$, $p<0.0001$). Correspondence analysis was applied to obtain a visual map of the relationship between samples and consumers' descriptions, explained by 81.58% of the variability of the experimental data on two first dimensions. Results showed that samples VI and IV were described as good appearance, flimsy, refreshing, tasty, with ideal sweetness or sweet, not very acid, and not very characteristic flavor, which is in agreement with their highest mean overall liking scores (6.9 and 6.2, respectively). On the other hand, sample V, which presented the lowest score (4.7), was described as bitter, with cooked flavor and astringent. The group of samples I, III and VII, which were associated with terms such as acid, not very tasty, consistent and little sweet, showed low liking scores of 6.0, 5.3 and 5.1, respectively. Results demonstrated that clarification previously to both concentration processes (RO and OE) resulted in good sensory characteristics and better acceptance of blackberry juice, being the open-ended question able to detect the juices' drivers of liking.

Keywords: consumers preference, microfiltration, reverse osmosis, osmotic evaporation