

Interaction of Retronasal and Orthonasal Perception of Unfamiliar Flavors

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Aroma compounds can be perceived through orthonasal (through the nose—smelling) or retronasal (through the mouth—flavor) mechanisms. These signals are processed by the same receptors and by the same sections of the brain, but are thought to elicit different perceptions, hedonic responses and behaviors. In this experiment, sensory evaluation of unfamiliar flavors by retronasal (flavor) and orthonasal (smell) perception will be studied. The unfamiliar flavors used will be Yuzu, Passionfruit, Hibiscus, and Peach. A matching test wherein panelists are given a reference sample containing one of the aroma compounds and told to identify that sample amongst the four unknowns will be performed for three different scenarios. First, each flavor will be given orthonasally and the subject asked to identify the same flavor orthonasally from a multiple-choice group of the four flavors. Second, the flavors will be given retronasally and the subject is asked to identify the flavor retronasally by multiple choice. Last, the flavor is given retronasally and the subject is asked to identify the flavor orthonasally through multiple choice. For each condition, the probability of a panelist correctly guessing the matching sample is 0.39%. A chi-square analysis will be used to determine if the distribution of correct identifications differ across testing conditions. Panelists are hypothesized to do best on the orthonasal-orthonasal condition because orthonasal perception is most sensitive. Flavor matching in the retronasal-retronasal condition is hypothesized to be less conclusive because of decreased sensitivity to aroma compounds. We hypothesize that panelists will perform worst in the retronasal-orthonasal condition because different sensations are expected to be elicited by the different routes of delivery.