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A Role for PROP Status in the Individual Variation in Development of Astringency

Astringency is a common yet complex sensation associated with drying, puckering and roughing of the oral surfaces commonly associated with consumption of polyphenolic (high tannin content) foods such as tea, coffee, red wine, cranberries etc. The tannins in such foods form insoluble complexes with salivary proteins and take away the lubricating properties of saliva, generating roughness in the mouth. It is well known that there are individual differences in astringency perception. For instance, PROP non-tasters have been shown to like and consume high-flavonoid berry and juice products more than PROP tasters and as such PROP taster phenotype has the potential to be used as a marker for explaining individual variation in astringency. In our previous work on perceived astringency from cranberry juice cocktail (CJC), we observed that male PROP non-tasters perceived less astringency from and gave higher liking ratings to CJC supplemented with 1.5% tannic acid than did male medium and super tasters (Mattes et al., 2017). Although in most astringency-related work, tannic acid is used as the prototype astringent, it is not commonly consumed in food products and so there is a need to develop an astringent food model that resembles real-world food. In our current study, we used cranberry polyphenol extract (CPE, Ocean Spray) to develop such a model. Three concentrations of CPE (low, medium and high) were used to vary levels of astringency in CJC. 68 super-taster and non-taster subjects evaluated plain CJC and the three CPE-supplemented CJC samples for various attributes as well as liking. The present findings will be discussed in the context of PROP as a marker for astringency development and liking of cranberry juice.