Food Additives Modify Bitter Taste Perceptions in Rats

Abstract

Bitter taste perception is driven by an innately aversive reaction due to adaptive association with commonly toxic and potentially harmful substances. For this reason, bitter foods are often subject to addition of sugar and other synthetic additives which act to reduce the bitter component, but ultimately make those foods less healthy and increase the caloric value. Water restricted Sprague-Dawley rats were exposed to water and seven concentrations of each ClearTaste sample in a Davis Rig to determine the most effective ClearTaste sample and concentration. For three of the ClearTaste samples, we found a significant main effect of ClearTaste. CT-9 significantly increased licks when added to diphenidol at various concentrations compared to diphenidol alone, making diphenidol less aversive. The other two samples showed significant main effects of ClearTaste, where adding ClearTaste to diphenidol decreased licks to diphenidol alone, making diphenidol more aversive. For the remaining samples, a \(t\)-test showed certain individual concentrations increased or decreased licks compared to diphenidol alone. Based on the results of this study, CT-9 is the sample that showed the most overall significant increase in licks suggesting that this is the production process the company should choose. This research could potentially have a significant impact on public health due to the potential implications it could have on our society, especially by decreasing the caloric value of food.