THE INFLUENCE OF COLOR ON TASTE PERCEPTION

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The appearance of foods and drinks can make people “see” flavors before they actually taste anything, a phenomenon that can influence their flavor experiences, food likes and dislikes.

Your taste buds, nose and brain play an important role in determining the five basic tastes, which are sweet, salty, sour, bitter and umami (savory). When your taste buds and nose come into contact with food, they send signals to your brain to interpret flavor. However, since we look at our food before eating, our eyes are sending signals to our brain well before our tongue and nose ever get the chance. This can predetermine how we will perceive the taste and flavor of what we’re about to eat.
Taste Tricked by Sight

While many of us like to believe that we are not easily deceived, our sense of taste is often fooled by our sense of sight. This is because humans have certain expectations of how food should look. For example, we may expect yellow pudding to have a banana or lemon flavor and red jelly beans to have a cherry or cinnamon flavor. In fresh foods, such as fruits and vegetables, we rely on the color to determine their level of ripeness and/or freshness. When a food or beverage’s color is off or doesn’t match our expectations, our brain tells us that it tastes different, too, even without physically tasting the food or drink.

Some food companies use these psychological color cues to their advantage, adding food coloring or dyes to processed, packaged and even fresh foods to give the impression of a certain taste, flavor or quality. For example, adding a red colorant to the skin of an apple may influence consumers into believing the apple is sweeter in taste.

Experiments: Color’s Effect on Taste Perception

Beverage Color
- A cherry drink manipulated to be orange in color was thought to taste like an orange drink. A cherry drink manipulated to be green in color was thought to taste like lime.
- When people drink Sauvignon Blanc, a popular white wine, they may taste banana, passion fruit, bell pepper and even a flinty, mineral taste. But if a flavorless food coloring is added to the Sauvignon Blanc to turn it a deep red, people’s taste perceptions change. They taste flavors associated with merlots or cabernets, wines known for their deep red colors.

Food Color
Orange colored microwave popcorn is perceived stronger in cheese flavor than white cheddar microwave popcorn — even if the orange colored popcorn has no cheese flavor added.

Packaging Color
- 7-Up brand added 15% more yellow color to a can of 7-Up, which caused the lemon flavor to be perceived as stronger.
- Coffee was stored in four different colored jars: brown, red, blue and yellow. Consumers were instructed to evaluate the aroma only and the results revealed coffee stored in brown jars was rated too strong; when stored in reds jar had a richer, fuller aroma; when stored in blue jars the aroma was milder and when stored in yellow jars the aroma was the weakest.
Cup Color

- Fifty-seven participants tasted four samples of hot chocolate, two of which were sweetened, from four cups. The cups were the same size, but different colors: red, orange, white and dark cream. The participants had to rate each sample of hot chocolate on multiple sensory attributes. The results revealed that an orange cup with a white interior and dark cream colored cup enhanced the chocolate flavor of the drink and consequently improved people’s acceptance of the beverage. By contrast, sweetness and chocolate aroma were less influenced by the color of the cup, although the results still showed that the hot chocolate when consumed from the dark–cream cup, was rated as sweeter and its aroma more intense.

- Another study involved participants drinking hot tea or a chilled soft drink from cups made of different materials, all having a pinkish color and one cup was translucent. One of the attributes rated was sweetness and those drinks consumed from the pinkish cups were rated as tasting significantly sweeter than when exactly the same drink was evaluated from the transparent cup.

Conclusion

The role color plays on our perception of taste has long been researched by food companies to better understand consumer behavior and how that impacts the perception of their products. Without these visual cues, our taste buds might get confused and not recognize the lemon flavor in pudding or cherry flavor in jelly beans that we’ve grown to expect. Food companies know color is important because consumers determine the quality and taste of a food product long before their taste buds have had a chance to process it!
References

Food ingredients (which may be encapsulated flavor themselves) are suspended in a current of upward air flow and shell materials are sprayed onto them.


The Influence of the Color of the Cup on Consumers’ Perception of a Hot Beverage; *Betina Piqueras-Fiszman and Charles Spence*, August 23, 2012

How Color Affects Your Perception of Food – *Norm Demers; Konica Minolta* - 2013