Good Food, Good Life

The Smell of Familiar Fruit Tastes so Sweet

Lausanne, SWITZERLAND 23 July 2007 – In a recent edition of *Chemical Senses*, a research team from the Nestlé Research Center (NRC), Lausanne, Switzerland, announced the enhancing effects of familiar food odors on the taste perception of sweetness. The full contribution is available on the *Chemical Senses* internet site http://chemse.oxfordjournals.org/cgi/content/full/32/3/205.

The Nestlè Research Center findings can potentially be used by Nestlé to reduce the sugar content in foods and beverages while still delivering an expected level of sweetness and pleasure to consumers. "*By enhancing sweetness using undetectable sweet odors, we can effectively lower the sugar content in foods while still bringing consumers the rich flavor they expect,"* added Nathalie Martin, head of the NRC sensory science group.

The study examined the effect of food odors used in very low concentrations, undetectable by subjects, to enhance the taste perception of sweetness. An ethyl butyrate odorant, which imparts a strawberry odor, was combined with a sweet tasting sucrose solution. Tasters identified that the sucrose solution with ethyl butyrate tasted sweeter than its sucrose solution counterpart without the added sweet odor.

These results indicate that odors not consciously perceptible by subjects were still unconsciously recognized by the brain and thus associated with a familiar, sweet food. The use of odorants at very low concentrations enhances taste perception by causing a food to taste sweeter than it is in reality.

"*Previous sensory experiences have a profound impact on current perceptions of the world around us,*" said Dr. David Labbe, the NRC scientist leading the project, *"Aroma and taste are intricately tied both consciously and unconsciously to all that is familiar to us."*

Olfaction, the sense of smell activated by odorants, affects taste perception in present events and also through past experiences. Food consumption involves the simultaneous stimulation of several senses including taste, smell, mouth-feel, sight, etc. This leads to the creation of sensory associations that tie a familiar food to memory and emotional processes in the brain, thus influencing subsequent sensory experiences (in this case, olfaction and taste) of other, unrelated foods.

For example, an unrelated food flavored with a strawberry odorant may cause the food to be perceived as tasting sweeter. If the same food is flavored with a peanut odorant, it would likely be associated with the saltiness of peanuts and therefore not taste as sweet.

Article Reference:
Labbe D, Rytz A, Morgenegg C, Ali S, and Martin N; Subthreshold Olfactory Stimulation Can Enhance Sweetness; Chem Senses (March 2007). doi:10.1093/chemse/bj1040.

About the Nestlé Research Center
Established in 1987, the Nestlé Research Center (NRC), Lausanne, Switzerland, is one of the world's leading research institutions in food, nutrition and life sciences. With a diverse staff of leading researchers from a broad range of scientific competencies, NRC possesses a unique blend of talent and expertise. Knowledge on nutrition and health, food science, food/consumer interaction and food quality and safety are combined at the Nestlé Research Center to help develop Good Food as a source of Good Health throughout life.

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