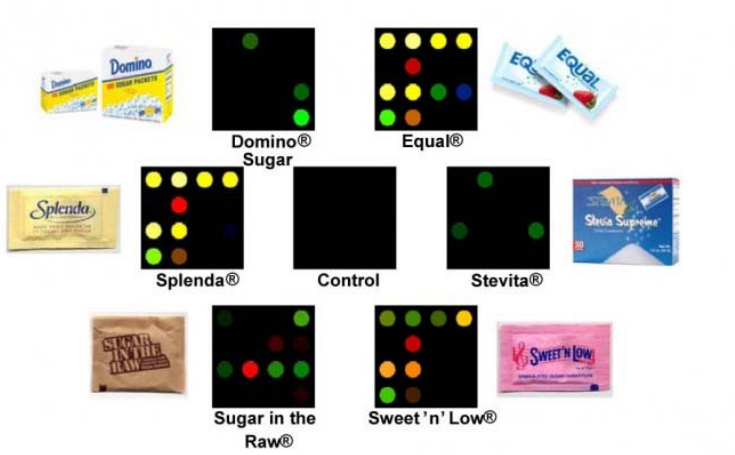
Health Tech
August 18, 2009 12:59 PM PDT

Electronic tongue is sensitive to matters of taste

by Elizabeth Armstrong Moore



The electronic tongue can detect 14 common sweeteners.
(Credit: Kenneth Suslick/University of Illinois at Urbana-Champaign)

At the **American Chemical Society's 238th National Meeting** in Washington Monday, researchers from the **University of Illinois at Urbana-Champaign** announced "the first practical 'electronic tongue' sensor" that identifies sources of sweetness and then changes colors depending on the type and quantity of sweeteners present.

Under the leadership of chemistry professor **Kenneth S. Suslick**--who may or may not return my phone call to explain, among other pressing matters, what is going on in his **university Web site photograph**--the Illinois team developed a sensor about the size of a business card that can simply be dipped into food samples. "We take things that smell or taste and convert their chemical properties into a visual image," Suslick said in a press release.

I can't help but cut to an image of a white-tablecloth restaurant with a little sign that asks patrons to please be discreet when pulling out their tongues.

Of course, getting other devices to work like the human tongue isn't new. Several efforts have been made over the years in an attempt to update the current standard, a test called "**high-performance liquid chromatography**" that requires an expensive desk-sized machine and accompanying technician.

While some efforts have been truly comedic (there was the one robot that **confused human flesh with prosciutto**--but who knows, we may taste more like pigs than we like to think), others have been more successful, including the announcement last August of an artificial tongue that can **identify a wine's age and variety**. (Again, I find myself cutting to an image, this one of the proverbial wine snob with red puckered lips matched up against a row of posers all dipping business cards into their glasses.)

But seriously, this latest electronic tongue sensor could prove invaluable for anyone needing to closely monitor their blood glucose levels, or even for identifying toxic substances in foods or the environment at large, according to the researchers.

Suslick's team spent a decade developing **colorimetric sensor arrays (PDF)**, where chemicals in each of the 16 to 36 micro dye spots reacted with sweet substances to produce color changes. The colors tell not just which types of sweeteners are present, but also how much there is, shown through the resulting color's intensity. It works--unlike its heavy, expensive predecessor--in two minutes.

Doctoral student Christopher Musto points out that more work is needed to develop a truly complete electronic tongue that can also detect sour, salty, bitter, and **umami** (i.e. savory). I know, I know, there are many great possible applications for this kind of technology, but I can't help picturing a future me telling my grandchildren about the good ol' days when we actually used our own tongues to tell us what we were eating.

Suslick's research was funded by the **National Institutes of Health**, and **iSense** is commercializing the technology.

Elizabeth Armstrong Moore is a freelance journalist based in Portland, Ore. She has contributed to Wired magazine, The Christian Science Monitor, and public radio. Her semi-obscure hobbies include unicycling, slacklining, hula-hooping, scuba diving, billiards, Sudoku, Magic the Gathering, and classical piano. She is a member of the CNET Blog Network and is not an employee of CNET.

Topics: **Emerging tech**, **Gadgets**, **Research**, **Innovation**

Tags: **electronic tongue**, **sweetness**, **diet**, **diabetes**