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# Rapid and accurate detection of sucralose in solution

Tech ID: 33422 / UC Case 2024-774-0

### **BACKGROUND**

Detection of sucralose (also known under its trade name Splenda®), particularly in food and beverages, is slow and involves the use of complex instrumentation. Current techniques involve high pressure liquid chromatography and/or mass spectrometry. Use of these techniques is not commercially viable. Producers want rapid and accurate responses - resulting in some producers determining sucralose concentration by taste alone.

#### **TECHNOLOGY DESCRIPTION**

An interdisciplinary collaboration of UC Santa Cruz researchers has developed an electrode based test that can accurately provide sucralose concentrations in a sample solution in under 5 seconds. The key to this breakthrough is a screen printed electrode made up of a metal oxide and a metal (such as a dielectric metal) that can perform high efficiency electrooxidiation of sucralose. The team has tested two electrodes to date: one a copper oxide electrode and the other a platinum wire electrode which are capable of linear detection of sucralose up to 25 nM and 75 nM respectively.

The electrode is designed to be used in conjunction with a hand-held device that displays the sucralose concentration numerically.

The system can be adapted for the detection of other carbohydrates as well as sucralose.

## **APPLICATIONS**

Applications include:

- Quality control testing in the food and beverage industry
- ▶ Testing of groundwater for human waste sucralose does not break down in the environment and its presence in water is indicative of the presence of human waste
- ▶ Testing for intestinal permeability the presence of sucralose in the urine of an individual who has previously ingested sucralose is an indication of intestinal permeability.

# **ADVANTAGES**

No other rapid tests for measuring sucralose are available.

Simple, inexpensive instrumentation

## **RELATED MATERIALS**

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ Simple and Rapid Method for the Quantification of Haloginated Dissaccharides (i.e. Sucralose) in an Aqueous Media
- ▶ Producing aluminum oxide (alumina) from reaction of a gallium/aluminum alloy with water
- ▶ Biodiesel Made Easy
- ▶ Fluorescence Assay For Intestinal Permeability

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Permalink

### **INVENTORS**

- ► Pourmand, Nader
- ► Singaram, Bakthan
- Stanley, John

### OTHER INFORMATION

### **KEYWORDS**

sucralose, Splenda(R), sucralose
detection, rapid sucralose detection,
gut permeability, electrode,
electrooxidation, screen printed
electrode, water quality testing,
quality control, food and beverage

## CATEGORIZED AS

- **▶** Sensors & Instrumentation
  - Analytical
  - ► Environmental Sensors

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