Simple and Rapid Method for the Quantification of Haloginated Dissaccharides (i.e. Sucralose) in an Aqueous Media

Tech ID: 27127 / UC Case 2014-918-0

BACKGROUND

Sucralose is widely used as an artificial sweetener because of its low caloric content and is sweeter than table sugar (sucrose). Due to its resistance to metabolic degradation, sucralose can also be used as a marker for noninvasively evaluating the gastrointestinal small digestive tract (intestine) or colonic permeability. This urinary marker is traditionally analyzed by time consuming and expensive methods, such as high performance liquid chromatography coupled to mass spectrometry (HPLC-MS) or evaporative light scatter as the detectors. UCSC researchers have developed an alternative method using a chemical-fluorescent technique for rapid analysis of halogenated disaccharides, such as sucralose.

TECHNOLOGY DESCRIPTION

Researchers at UC Santa Cruz have developed a chemical-fluorescent methodology to expedite quantification of sucralose in aqueous and biological solutions. This circumvents the HPLC-MS analytical challenge, which is labor intensive. The invention involves a quenched fluorescence-boronic acid based system to measure the sucralose derivative in a multi-well plate. The architecture of the quenched fluorescence system utilizes a boronic acid receptor molecule to detect cis diols present on the sucralose derivative.

APPLICATIONS

- Rapid measurement of sucralose in solution
- Solutions can be buffers, foods and beverages, as well as biological specimens including urine

ADVANTAGES

- Fewer steps in comparison to traditional method, high throughput analysis
- Low volume
- Inexpensive

INTELLECTUAL PROPERTY INFORMATION

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,274,483	04/30/2019	2014-918

RELATED TECHNOLOGIES

- Fluorescence Assay For Intestinal Permeability

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Rapid and accurate detection of sucralose in solution
- Producing aluminum oxide (alumina) from reaction of a gallium/aluminum alloy with water

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OTHER INFORMATION

KEYWORDS

halogenated disaccharides, sucralose, chemical-fluorescent methodology, boronic acid receptor molecule, urinary marker, high throughput

CATEGORIZED AS

- **Medical**
  - Disease: Digestive System
  - Other
  - Research Tools
  - Screening
- **Research Tools**
  - Other

RELATED CASES

2014-918-0, 2014-954-0

▶ Fluorescence Assay For Intestinal Permeability

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