Variants of the Sweet Protein Brazzein with Improved Characteristics

INVENTORS • John Markley, Fariba Assadi-Porter, Zheyuan Jin, Goran Hellekant

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing new variants of the natural brazzein protein that show improved sweetness characteristics over other brazzein variants and wild-type brazzein.

OVERVIEW

The consumption of sugar, the most widely-used sweetener, can lead to significant problems such as undesirably weight gain due to its high calorie content. Most other sweeteners either have unwanted side effects or temporal sweetness profiles that do not adequately match that of sugar. Brazzein is a naturally-occurring sweet protein that was originally developed as a sugar alternative by UW-Madison researchers Göran Hellekant and Ding Ming (see link below).

THE INVENTION

UW-Madison researchers have now developed new variants of the natural brazzein protein that show improved sweetness characteristics over other brazzein variants and wild-type brazzein. To test the properties of the new variants, the researchers recorded the response to the proteins of taste nerve fibers in rhesus monkeys. In addition to producing a stronger response, the brazzein variants elicited a nerve fiber profile much closer to that of sucrose than wild-type brazzein or other brazzein variants. Human subjects also reported the taste of the new variants was purely sweet, with no sourness, saltiness or bitterness.

APPLICATIONS

• Sweetening beverages and foods

KEY BENEFITS

• New variants possess temporal sweetness profiles much closer to sucrose than either wild-type brazzein or previous brazzein variants.
• More potent – Variants are three to four times sweeter than wild-type brazzein, which itself is many times sweeter than sucrose.
• Sweetener is stable when exposed to elevated temperatures for long periods.
• Provides gene sequences that can be inserted into plant genomes to make fruits and vegetables sweeter
• Genetic system can produce sweetener in large quantities and at low cost.
• Very small quantities of sweetener needed to sweeten coffee, tea and other beverages
• Can be used alone or in combination with other sweeteners

ADDITIONAL INFORMATION

Tech Fields
Food & Supplements - Ingredients
Agriculture - Plant biotech

CONTACT INFORMATION

For current licensing status, please contact Emily Bauer at emily@warf.org or (608) 262-8638.