Comparison of Postprandial Glycemic and Insulinemic Response of allSWEET®, Non-GMO Allulose, Consumed Alone or When Consumed With Sucrose: a Randomized, Controlled Trial

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Objectives: Allulose is a naturally occurring monosaccharide with an approximate sweetness of 70% of sucrose without raising postprandial glucose and insulin levels. allSWEET® has been in the marketplace since 2015 but it has not been confirmed to attenuate glycemic and insulinemic response when consumed with sucrose. This study will therefore evaluate the effect of consuming allSWEET® alone or when consumed with Sucrose on postprandial glucose and insulin levels.

Methods: Using a double-blind, randomized, controlled design, 15 healthy participants (7M:8F, Age: 51 ± 15 years, BMI: 26.9 ± 4.1 kg/m^2) consumed one of three 250 mL beverages over a period of 10 minutes containing either 15g of allSWEET®, 15g of allSWEET® + 30g sucrose, or 30g of sucrose. Blood samples were collected fasting and at 15, 30, 45, 60, 90 and 120min after the start of the test meal.

Results: Glucose incremental area under the curve (iAUC), measured over a a two-hour period was significantly lower after both allSWEET® (0.6 ± 0.2 mmol/Lxmin) and allSWEET® + sucrose (86.0 ± 9.5 mmol/Lxmin) compared to sucrose alone (118.1 ± 11.3 mmol/Lxmin). Postprandial glucose levels were significantly lower after allSWEET® + sucrose and allSWEET® when compared to sucrose alone at 15 and 30 minutes. Insulin iAUC was significantly lower after both allSWEET® (103.7 ± 27.8 uU/Lxmin) and allSWEET® + sucrose (1282.1 ± 126.2 uU/Lxmin) compared to sucrose alone (1828.2 ± 239.1 uU/Lxmin). Postprandial insulin was significantly lower after allSWEET® and allSWEET® + sucrose when compared to sucrose alone at 15 and 30 minutes.

Conclusions: This study demonstrates that when taken alone, allSWEET® does not elicit a glycemic or insulinemic response. In addition, when allSWEET® is added to sucrose it attenuates both the overall and early glucose and insulin responses. allSWEET® may therefore have a beneficial role as a sugar substitute for acute glycemic and insulinemic control. Registration: Clinical trials.gov NCT05185960

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