Composition and Use of Macro-Minerals to Reduce Body Weight

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Background and Unmet Need

Despite all efforts to curb the epidemic of obesity through nutrition education, dieting, and exercise, current global efforts are failing as evidenced by the continuous rise in obesity levels, especially in developing countries. Postprandial glycemia is directly associated with the development of diabetes and obesity. Further, the intake of refined carbohydrates, e.g., made from wheat flour, white rice and its byproducts, sugar, and other sweeteners, is positively associated with obesity and diabetes. The availability of refined carbohydrates has increased tremendously during the past few decades and contributes to more than 50% of the food supply in most countries.

To date, most weight loss studies and programs have focused on the imbalance between energy intake and expenditure. However, macro mineral enrichment is found to offer great potential to lessen the impact of refined carbohydrates on weight gain. Because refined carbohydrates make up such a large percentage of the food supply, there is a significant demand for supplements or product enrichment additives to improve the macro mineral profile of refined carbohydrate products resulting in weight control and improved health of consumers globally.

Opportunity

According to recent global estimates, roughly 500 million adults worldwide are obese.[1] Approximately 69% of adults in the United States are obese or overweight.[2] As obesity rates increase globally, the demand for obesity solutions will increase. The global weight loss supplement market was valued at $33.4 Bn in 2020 and is expected to grow at a compound annual growth rate of 16.6%.[3]

Most recently, GLP-1 Agonists have become a popular therapeutic for weight loss. However, as GLP-1 drugs, such as Ozempic, are used by people with diabetes to control blood glucose levels, newfound demand as a weight loss aid has created a shortage of the supply of this important drug.[4] As a result, it is vital to develop alternative solutions so as not to strain the supply of GLP-1 medications for diabetics.

Dr. Obeid and his team have developed and patented a formulation of macro-minerals that facilitates weight loss without requiring specialty diets. They have found diet changes, particularly with foods with low phosphorus and high refined carbohydrates, affect the production of adenosine triphosphate (ATP), which is crucial in regulating energy metabolism. Diets of highly refined carbohydrates with low phosphorous is believed to compromise ATP production, which is further thought to increase feelings of hunger, resulting in overeating. Dr. Obeid has found that phosphorous enrichment using a combination of a patent-protected blend of macronutrients, supports weight loss for those with a prominent refined carbohydrate diet. Importantly, this invention is found to

- **Decrease postprandial glycemia though improving insulin sensitivity;**
- **Increase energy expenditure; and**
- **Suppress appetite.**

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[1] Finucane MM, Stevens GA, Cowan MJ, et al. National, regional, and global trends in body-mass index since 1980: systematic analysis of health examination surveys and epidemiological studies with 960 country-years and 9.1 million participants. Lancet. 2011;377:557-67.
[2] Flegal KM, Carroll MD, Kit BK, Ogden CL. Prevalence of obesity and trends in the distribution of body mass index among US adults, 1999-2010. JAMA. 2012;307:491-7.
[3] Weight Loss Supplements Market Size. Grand View Research, 2020.
[4] The Real Reason Behind a Diabetes Drug Shortage. Rochester Regional Health, January 2023.

Additional Unique Attributes

- Patent-protected blend of essential macronutrients may be added to common foods to fulfill dietary needs.
- May be enriched in final food products or produced as a supplement.
- No specialty diet required.

Clinical Applications

This technology comprises carbohydrate ingestion accompanied by exogenous phosphorus availability to fulfill all metabolic processes' requirements to improve postprandial glycemia and decrease body weight.

Stage of Development

Laboratory proof of concept; limited pilot study.

Intellectual Property

US Patent 11,141,429 B2, published October, 2021.

Collaboration Opportunity

Seeking licensee for commercialization or collaboration to advance preclinical development.

References and Publications

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