Global Science Research Journals

Available online at
www.globalscienceresearchjournals.org/

Global Journal of Microbiology Research

Short Communication

Open Access

Vol. 10 (3), pp. 1-2, December, 2022

The variability of amino acids in human food and diet

L David*

Department of Biochemistry & Molecular Biology, Monash University, Monash, Australia

*Corresponding author. E-mail: Davidlew@gmail.com

Received: 04-Nov-2022, Manuscript No. GJMR-22-83181; **Editorial assigned:** 7-Nov-2022, Pre-QC No. GJMR-22-83181 (PQ); **Reviewed:** 21-Nov-2022, QC No. GJMR-22-83181; **Revised:** 29-Nov-2022, Manuscript No. GJMR-22-83181 (R); **Published:** 07-Dec-2022, DOI:10.15651/GJMR.22.10.416.

DESCRIPTION

Molecular research indicates that dietary amino acid intake influences health and disease by modulating metabolism. However, how these effects will manifest in human food consumption and dietary patterns is unknown. In this paper, we create a set of algorithms to map, characterize, and model the landscape of amino acid content in human food, dietary patterns, and individual consumption, as well as their relationships to health status, for over 2,000 foods, ten dietary patterns, and over 30,000 dietary profiles (Schmidt, et al., 2006). We discovered that the types of amino acids found in foods and consumed by humans are highly dynamic, with far greater variability than fat and carbohydrate. Some amino acids are linked to conditions like obesity, while others found in the same food are linked to disease. We show how to account for these health trade-offs in dietary practise by using linear programming and machine learning to satisfy biochemical constraints in food and human eating patterns to construct a Pareto front, a method of achieving optimality in the face of trade-offs commonly considered in economic and evolutionary theories. This research may lead to the development of quantitative guidelines for human protein-quality intake (O'Loughlin, et al., 2000). Diet is widely regarded as a significant predictor of human health and disease. Numerous dietary recommendations, such as the Dietary Guidelines for Americans, have been developed. These dietary recommendations frequently have two major goals: increasing the variety and nutrient density of foods consumed, as well as lowering the intake of certain components known to increase disease risk. These restrictions involve restricting the consumption of certain carbohydrate and fat types, such as added sugar, saturated fat, and Tran's fat, and are supported by epidemiology, human and model organism research. While the types of dietary carbohydrate and fat are widely accepted as important determinants of diet quality, protein, the other macronutrient, is frequently overlooked. With a few exceptions, most human nutritional studies treat protein as a single variable that is frequently held constant. Despite this, each amino acid has its own metabolism and is required for a variety of cellular and physiological processes (Sims, et al., 1989). A growing body of evidence suggests that dietary variation in amino acids like serine, glycine, asparagine, histidine, and methionine influences health and disease, including cancer, *via* well-defined molecular mechanisms (Thomas, et al., 2013). A compelling case can be made for conducting systematic research on amino acid intake in human diets and potential health consequences (Wipperman, et al., 2014).

CONCLUSION

In this study, we examined the variability of amino acids in human food and diets and discovered that it is comparable to that of fats and carbohydrates. These analyses are used to develop dietary amino acid guidelines based on the best associations with health status. Finally, we use machine learning algorithms to create personalized diets optimized for specific health states based on amino acid intake. This research aims to address two major limitations in the nutritional sciences: a lack of systematic collections of nutritional information and a lack of computational tools to investigate the relationships between food, dietary patterns and practices, and health status. As a result, we discovered several surprising links between dietary amino acid intake, food and dietary patterns, and health. Unexpected associations between amino acid intake and pathologies such as obesity highlight non-intuitive diet-disease associations as well as inherent trade-offs in food amino acid content.

REFERENCES

Bi E, Schmidt TC, Haderlein SB (2006). Sorption of. heterocyclic organic compounds to reference soils: column studies for process identification. Environ.Sci.Technol. 40 (19):5962-5970.

O'Loughlin EJ, Traina SJ, Sims GK (2000). Effects of sorption on the biodegradation of 2-methylpyridine in aqueous suspensions of reference clay minerals. Environ Toxicol Chem. 19(9):2168-2174

Sims GK, O'Loughlin EJ, Crawford RL (1989). Degradation of pyridines in the environment. Crit Rev Environ Sci Technol. 19(4):309-340.

Thomas ST, Sampson NS (2013). Mycobacterium tuberculosis utilizes a unique heterotetrameric structure for dehydrogenation of the cholesterol side chain. Biochemistry. 52(17):2895-2904.

Wipperman MF, Sampson NS, Thomas ST (2014). Pathogen roid rage: cholesterol utilization by Mycobacterium tuberculosis. Crit Rev Biochem Mol Biol. 49(4):269-293.