International Research Journal of Biochemistry and Bioinformatics Vol. 12(2) pp. 1-2, April, 2022
Available online http://www.interesjournals.org/IRJBB

Editorial

Utilizing Dietary Carbs to Develop Plant-Based Carbohydrates Substitutes

Hashmi Virat*

Department of Medicine, New York, USA

*Corresponding Author's E-mail: virat135@gmail.com

Received: 01-Apr-2022, Manuscript No. IRJBB-22-84058; **Editor assigned:** 04-Apr-2022, PreQC No. IRJBB-22-84058 (PQ); **Reviewed:** 18-Apr-2022, QC No. IRJBB-22-84058; **Revised:** 22-Apr-2022, Manuscript No. IRJBB-22-84058 (R); **Published:** 29-Apr-2022, DOI: 10.14303/2250-9941.2022.08

Abstract

The market value of plant-based (PMA) foods is currently $7.9 billion US dollars. In the face of a lack of food and protein and a shift toward sustainable food, the production of PMA products is now an essential strategy that humans must employ. The manufacturing process and application technology of important PMA raw ingredients like textured protein have previously been the subject of extensive research. However, only a small number of review studies have examined the significance of food carbohydrates in this novel future food. Food carbohydrates are frequently used in PMA products due to their diverse structures and unique techno-functionality. Overall, sugars are essential for variety, flavor, and fragrance production, their capacity to replace fat or fat tissue, their imitation of animal skin and connective tissue, and their enhancement of PMA's surface (Oloke 2017). This review reveals a novel demand for PMA formulation ingredients based on carbohydrates.

INTRODUCTION

Deforestation, emissions of greenhouse gases, water consumption, and an increase of more than 500 percent in global meat consumption between 1992 and 2016 are some of the environmental effects of the rapid expansion of animal food production. According to the United Nations (2019), the world's population will have increased by 3 billion by the end of the 21st century, making it difficult to feed everyone. It is anticipated that the global demand for animal proteins will not always be met unless the current system of food production and supply is altered. International attention has recently begun to be paid to environmentally friendly meat analogs based on non-animal protein. 37% of people preferred vegetable protein to meat protein, according to a recent comparison of 90 international dietary guidelines (Rom et al., 2016). For a variety of nutritional, socioeconomic, and technological reasons, the majority of successful meat analog products currently on the market are made from plant proteins (Boukid, 2020). This is especially true for the COVID-19 and African Swine Flu pandemics. These plant-based meat analog (PMA) products are anticipated to gain popularity across a wide range of market segments, including certified religious foods, vegetarian and health-promoting foods, and certified religious foods. The significance of PMA in the establishment of a sustainable supply of protein nutrition for humans is demonstrated by the possibility of reducing land use by 15% and greenhouse gas emissions by at least 5% by partially substituting PMA for meat (Hampton 2017).

Vegans, vegetarians, and a larger portion of the meat-eating population currently consume PMA products. In addition to meeting consumer demands for animal welfare, this may make it simpler to reduce the number of animals bred in large numbers and the spread of production diseases. A recent Nielsen market report found that 43% of respondents would prefer to replace meat proteins with plant-based proteins and 62% would be willing to cut back on meat consumption. In point of fact, PMA is making rapid inroads into international markets. Since 2015, more than 6485 brand-new PMA products have been introduced worldwide. One of PMA's most likely markets in the near future is thought to be Asia (Caldow et al., 2016). The global market for vegetable meat is anticipated to be worth 15.7 billion US dollars in 2027 and 7.9 billion US dollars in 2022, respectively. Europe has a smaller share of the global market (51.5%), followed by North America (26.8%), Asia-Pacific (11.8%), Latin America (6.3%), and the Middle East and Africa (3.6%).

PMA foods like animal meat contain a lot of water, proteins, fats, and carbohydrates like gum, fiber, starch, and other things spices, salt, and flavors. A typical PMA product contains between 20% and 50% protein, between 2% and 30% carbohydrates, and between 0% and 15% lipids, according to Boukid, 2020. (Borders and Egbert, 2006) Recent reviews and research papers have extensively discussed the crucial roles that oil and vegetable protein play in producing a meat-like texture. But there was no systematic discussion or evaluation of the major functions and potential uses of carbohydrates in PMA foods now and in the future. The various kinds of carbohydrates and how they affect the texture and sensory qualities of the current PMA are discussed in this overview. It is discussed how carbohydrates might be able to satisfy PMA food innovations' future requirements. Incorporating functional carbohydrate components into PMA foods may benefit from this work (Heresco et al., 1999).

In ancient civilizations like China and India, foods high in protein from plants have been around for a long time. Vegetarians and Buddhists frequently use them as a meat-free protein substitute. Seitan is a popular traditional Chinese dish that contains plant-based protein and is made from wheat gluten. By removing the starchy components from the dough made with wheat flour, a chewy mass of proteinaceous gluten is produced.

CONCLUSION

It is helpful to clarify the potential roles of carbohydrates in PMA applications by comprehending the intricate structural compositions of meat and their functions in food. The majority of meat is composed of muscle fibers, fat, and structured connective tissue (like membranes). Muscle fibers are capable of emulsifying and gelling due to their soluble myofibrils. They have a polarization arrangement, a high aspect ratio, and a structure made up of layers of fibrous material.

REFERENCES

1. Oloke JK (2017). Oyster mushroom (Pleurotus species); a natural functional food. J Microbiol Biotechnol Food Sci. 7: 254.
2. Rom O, Aviram M (2016). Endogenous or exogenous antioxidants vs. pro-oxidants in macrophage atherogenicity. Curr Opin Lipidol. 27: 204-206.
3. Hampton T (2017). How useful are mouse models for understanding human atherosclerosis? Review Examines the Available Evidence. Circulation 135: 1757-1758.
4. Caldow MK, Ham DJ, Godeassi DP, Chee A, Lynch GS, et al (2016). Glycine supplementation during calorie restriction accelerates fat loss and protects against further muscle loss in obese mice. Clin Nutr. 35: 1118-1126.
5. Heresco-Levy U, Javitt DC, Ermilov M, Mordel C, Silipo G, et al (1999). Efficacy of high-dose glycine in the treatment of enduring negative symptoms of schizophrenia. Arch Gen Psychiatr. 56: 29-36.