ajfand SCHOLARLY, PEER REVIEWED
AFRICAN JOURNAL OF FOOD, AGRICULTURE, NUTRITION AND DEVELOPMENT
Volume 19 No. 4
November 2019
PUBLISHED BY AFRICAN SCHOLARLY SCIENCE COMMUNICATIONS TRUST
ISSN 1684 5374

COMMENTARY

IMPORTANCE OF NUTRITION IN FOOD PROCESSING

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The processing of food began many years ago in order to ensure the availability of edible food. Some of the earliest recorded examples of food processing include drying of cereals and meat, threshing of grains, smoking of venison and fermentation of milk into curds. In present day, food is processed for numerous reasons, ranging from convenience to nutrient enhancement. The role of food processing in food and nutrition security is well established but what role does nutrition play in food processing?

Nutrition can be defined as "the intake of food considered in relation to the body's dietary needs" [1] and the study of this, also called Nutrition, is defined as "the science that interprets the interaction of nutrients and other substances in food in relation to maintenance, growth, reproduction, health, and disease of an organism [2] ". In a general sense, nutrition is the central reason for food processing. Whether processing is done for palatability, sensory improvement, volume reduction, preservation or nutrition enhancement; the core idea behind the processing of food is to enable human beings get good value from their food. In ancient years, the majority of processing was done for separation or preservation but now processing has evolved to produce foods that require shorter preparation times, last longer on the shelf and have added vitamins and minerals in addition to numerous food innovations. The drawback, however, is that heavily processed foods may also increase the risk of disease. Increasing awareness of

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these risks has necessitated the development of improved processing technologies to offer consumers healthier alternatives.

With the myriad of processing techniques now available, another important role of nutrition in food processing is in determining the best processing method to use for a particular food. Food processing can deplete, preserve or enhance the nutritional composition of foods and different processing operations may have different effects on specific components of food. For example, pineapple is a great source of vitamins, dietary fibre and health-promoting compounds and can be canned, dried or processed into juice. However, canning and drying are likely to deplete the vitamin C content of pineapple while juicing will significantly reduce the amount of dietary fibre that can be obtained from the final product. The choice of which to consume would depend on the nutritional requirements of the consumer whereas the choice of which to manufacture is dependent on what the manufacturer chooses to supply.

Sadly, the majority of commercial processing often has factors other than nutrition as the main motivator. While this is not necessarily wrong, it has many disadvantages and sometimes grave consequences because the main focus of processing could make foods nutritionally unattractive. For instance, if a manufacturer of snacks for children uses taste as the main motivator, we will have snacks that have unacceptable levels of sugar, hence increasing the risk of obesity, high blood pressure, diabetes and other diseases. Also, the addition of salt, monosodium glutamate, and fats enhance the taste of many foods but also increase the risk of disease.

Over the years there have been many discoveries by food scientists and nutritionists about the effect of processing on the food we consume as well as factors that affect our ability to obtain maximum nutritional benefit from food. This knowledge can be catalysed into food innovations that provide better nutrition than most of the processed products on the market. Innovations such as the incorporation of vitamin C from food sources into high iron foods stemming from the knowledge that the absorption of iron is enhanced in the presence of vitamin C. Also, proper processing of seeds, grains and legumes to ensure that the nutrients we aim to gain from consumption are not hindered by anti-nutrients such as phytates, tannins, and protease inhibitors. Minimal processing technologies have paved the way for the introduction of fresher and healthier food products which can provide convenience, a level of shelf stability and good nutrition without compromising sensory appeal but there is still so much more that can be done.

I look forward to a time when nutrition plays a paramount role in the development of processed food products to ensure that even when food is taken from a shelf, there is the assurance that whatever is consumed will not cause more harm than good. Food scientists and nutritionists need to do more than just play a part in food processing. They need to be part of the decision-making process by owning and operating food processing companies. When we use our knowledge and expertise to compete with companies whose main focus is profit regardless of nutritional benefit, we can promote more healthy food choices and eventually cause a positive change in the industry.

References

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