



## Exploring the Impact of Apple Fruit Processing on the Food Microbiome

Yang Gao\*

Department of Food Processing, University of Science and Technology, Beijing, China

### DESCRIPTION

Apple fruit processing is a process that involves the preparation of apples for consumption, either for direct consumption, juice production, or for other food manufacturing. The production of apple-based products can have a significant impact on the food microbiome. It can influence the microbial diversity of the foods consumed and contribute to changes in human gut microbiota. As such, it is important to explore apple fruit processing affects the food microbiome and its implications for human health. Apple fruit processing begins with the selection and inspection of fruits that are appropriate for use. This includes ensuring that they are ripe, free from damage, and free from disease-causing microorganisms. The apples are then washed to remove dirt, dust, and other contaminants so that they can be used in food processing. After this step, fruits are peeled, cored, sliced or diced before being further processed into juice or other apple-based products including jams and jellies. During this process, microbes can be introduced into foods from contact with equipment surfaces as well as workers' hands and clothing.

Apple fruit processing also contributes to a large number of microbial transformation reactions that can take place within these foods during storage. As apples are high in sugars and carbohydrates, they provide an ideal environment for microbial growth which results in changes in acidity levels as well as volatile compounds being produced by microorganisms over time. These changes have an impact on the flavor profile of the foods eaten as well as their nutritional value due to degradation of nutrients over time. In addition to impacting flavor profiles and nutrition levels of food products made from apples through microbial transformations during storage, apple fruit processing also influences human gut microbiota composition through introducing new bacteria into our bodies when consumed raw or processed products made from them. Different types of bacteria present in fruits such as *Lactobacillus spp*, *Bifidobacterium spp*, *Streptococcus spp*, *Bacillus spp*, *Enterococcus spp*, *Eubacterium spp*, Yeasts etc., have been found to be associated with different health benefits such as improved digestion among others. Hence it is important to understand apple fruit processing influences

these beneficial bacteria levels in order to better assess its impact on human health.

### Impact of apple fruit processing on the food microbiome

Apple fruit processing has a significant impact on the food microbiome. This is because the food microbiome is complex and diverse ecosystems, and processing of fruits affects their microbial composition. The processing steps include washing, sorting, trimming, slicing and dicing. These processes remove any microorganisms present on the fruit's surface and also reduce the nutrient content of the fruit which in turn affects the diversity of microbial species present in the food microbiome. In addition to impacting the microbial composition of a fruit, Apple fruit processing can also lead to cross-contamination with other food items due to shared equipment or contact with hands during handling. Cross contamination can significantly affect the microbial diversity of a food item and consequently its effect on our health. Furthermore, certain processing techniques such as heating and freezing can cause further changes in a fruit's microbial composition as some species are more resistant to temperature changes than others. Another factor that plays an important role in determining apple fruit processing impacts the food microbiome is storage conditions.

### Potential benefits of apple fruit processing on the food microbiome

The impact of apple fruit processing on the food microbiome can be significant. Apple fruit processing is the process of transforming apples into a variety of different products, including juice, applesauce, cider, and jams. This processing affects the microbial composition of the apples and the food microbiome, providing several potential benefits for human health.

**Increased levels of antioxidants:** Apple fruit processing can increase the concentration of beneficial antioxidants in the processed product. During the juicing process, for example, soluble phenolic compounds are extracted from apples which

**Correspondence to:** Yang Gao, Department of Food Processing, University of Science and Technology, Beijing, China, E-mail: gaoyang67@qq.com

**Received:** 01-Sep-2023, Manuscript No. JFPT-23-23319; **Editor assigned:** 04-Sep-2023, PreQC No. JFPT-23-23319 (PQ); **Reviewed:** 18-Sep-2023, QC No. JFPT-23-23319; **Revised:** 25-Sep-2023, Manuscript No. JFPT-23-23319 (R); **Published:** 02-Oct-2023, DOI: 10.35248/2157-7110.23.14.1053

**Citation:** Gao Y (2023) Exploring the Impact of Apple Fruit Processing on the Food Microbiome. J Food Process Technol. 14:1053.

**Copyright:** © 2023 Gao Y. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

contain powerful antioxidant properties. These compounds combat oxidative stress in humans and help to protect against chronic diseases such as heart disease and cancer. By incorporating processed apple products into diet can increase daily intake of antioxidants and reduce risk for certain diseases.

**Reduced risk of foodborne illness:** Processing apples also helps to reduce the risk of foodborne illnesses associated with raw apples. Apples are known to harbor a number of pathogenic bacteria including *Salmonella* and *E.coli* which can cause foodborne illness if consumed in large numbers. By cooking or juicing apples, these microorganisms are destroyed and rendered

harmless to humans. This makes processed apple products safer to eat than raw apples and helps to reduce risk for foodborne illness.

In conclusion, incorporating more processed apple products into diet can provide numerous benefits related to human health including increased levels of antioxidants, reduced risk for foodborne illnesses, and enhanced nutrient absorption from foods eaten with them. Apple fruit processing is an effective way to make sure that get maximum nutritional value from this tasty fruit while also protecting ourselves against risks associated with eating raw apples.