



## Products Made from Plants that are Based on Fiber from Freeze-Dried Cashews

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### ABSTRACT

*Due to the growing demand from people who want to avoid or consume less meat, plant-based foods are alternative goods that have revolutionized the food sector. The goal of this study was to further conversation about the usage of freeze-dried cashew fiber as a substrate in culinary preparations, enabling its application in commercial plant-based products, and to comprehend how gastronomy specialists think about this issue. In order to explore the potential of entirely plant-based preparations, recipes were created for products based on lyophilized cashew fiber that could contribute to this new market.*

**Keywords:** Food, Plant products, Cashew fiber

### INTRODUCTION

Raw vegetable ingredients are used to create plant-based cuisine, which satisfy the nutritional requirements of groups like vegetarians and vegans who want to consume less meat. This production tries to make these plant-based foods more similar to animal-based foods by offering them similar flavor, texture, and nutritional value. In Brazil, this market has shown yearly growth of 11% over the past five years, with sales of 48.8 million in 2015 and rising by 70% in 2020.

Although this market is constantly expanding, only 1% of the population completely stops consuming animal products, which encourages the food industry to create alternatives to the traditional goods that are highly consumed in the nation. This shows that people are more open to changing their eating habits these days, such as cutting back on meat consumption, and are increasingly accepting new products.

The so-called flexitarians are in front of this scenario. People who mostly follow a vegetarian diet but occasionally consume meat or even those who are transitioning to vegetarianism, or avoiding animal products but not entirely giving them up, are examples of these people. Although there are no restrictions on how much food can be consumed, these consumers should typically skip meat at least once a week.

A survey by The Good Food Innova Market Insights in collaboration with the Brazilian Institute of Public Opinion and Statistics, which included 2000 participants, found that 49% of participants cut back on their meat consumption in the previous year, while a similar survey by GFI in 2018 found that only 29% of respondents continued this habit. The recent significant rise in flexitarians customers creates opportunity for further market consolidation of plant-based products in Brazil. According to the same survey, women and young people make up the majority of flexitarians, with men and those over 55 years old being the most resistive to this change in lifestyle.

The demand for ingredients used to prepare these products increased as a result of the heating up of the market, and research shows that 47% of the replacements for animal-based products are made exclusively with vegetables like legumes, greens, and grains. The expansion of new plant-based products increased by 59% from August of 2020 to August of 2021, according to Innova Market Insights, as a result of the rise of the flexitarians public and the demand from various consumers for more variety in their diets. By 2027, 74.2 billion people will consume plant-based foods worldwide, and 370 billion people will do so by 2050. The main factors are an increase in the popularity of high-protein diets, the appeal of health and wellbeing, the rise in the demand for alternatives to traditional products made from animals, and the ensuing requirement for the food and beverage industries to offer choices to the general public.

The praising of agricultural practises that support crop rotation and soil health is another trend that has emerged alongside the popularity of plant-based products. The cashew fiber stands out among these alternative ingredients; it is a by-product produced during juice extraction that has a high dietary fiber content, 12% and is typically used as animal feed or just thrown away. Brazil's Northeast and North are naturally home to cashew trees, which helps the local community generate revenue and jobs, particularly during times of drought.

A number of studies have demonstrated the viability of employing wet cashew fiber in the creation of plant-based goods with favorable sensory acceptance, including cashew fiber hamburgers made solely of fiber, but also with soy protein and cowpea protein added to boost the product's protein level. Sucupira invented meatballs and paçoca, a traditional Brazilian dish made

J Nat Prod Plant Resour, 2022, 12(3):40-43 by sautéing onions and garlic in lard or butter over low heat, adding salty cured meat, and then gradually stirring in sieved manioc flour.

However, due to the high volume and weight in the transit cost, as well as the requirement to use the cold chain, the commercialization of wet cashew fibre as an ingredient for the food sector becomes impractical. The cashew juice-impregnated wet substance is extremely perishable and may begin to ferment in a few hours when left at room temperature. Working with dehydrated fibre is therefore necessary in order to increase commercialization possibilities and to enhance its availability and storage during the off-season.

Freeze drying is a drying method that has been investigated for the stability of cashew fibre. By immediately converting water from its solid state to its gaseous state by sublimation, this process preserves the raw material's physical-chemical structure as well as its sensory qualities of aroma, flavour, and texture. The wet fibre from the industry must be maintained in a refrigerated chamber for fewer than 24 hours prior to being put through the pre-treatment process in order for this method to be applied. Water must be added to the cashew fibre in each of the five washing steps, which must be completed in an expeller press, to help reduce acidity and fruit flavor. The fibre should next be dehydrated in an industrial- or pilot-scale-sized freeze dryer after being frozen. The lyophilized cashew fibre needs to be stored at room temperature in glass or aluminum bags.

This study's goals were to advance discussion about the use of lyophilized cashew fibre as a foundation for gastronomic preparations to enable its use in the production of large-scale plant-based products and to ascertain the opinions of gastronomy experts on this issue.

#### **MATERIAL AND METHODS**

Students and experts in the field of cuisine made up the total number of participants in the qualitative method known as the Virtual Focus Group, which involved eight women and five men. Three sessions, each lasting between 60 and 90 minutes, were scheduled on three different days. The sessions were conducted online because of the COVID-19 pandemic's restrictions. Prior to now, the National Research Ethics Committee had given the tests its approval.

#### **RESULTS AND DISCUSSION**

The volunteers responded that they had never come across freeze-dried fibre as an ingredient, but rather that it was incorporated into goods that were similar to animal protein when asked about the availability of the fibre on the market. The availability of the fibre in a usable state on the market intrigued the majority of people. The volunteers agreed that fibre was a healthy product, but they primarily took into account its dietary fibre content because they felt that it had a low protein level.

#### **CONCLUSION**

Flexitarians, vegetarians, vegans, and other dietary restriction groups have a high demand for plant-based goods that are comparable to meat, such as sausage, kibbeh, coxinha, and hamburger. The freeze-dried cashew fibre is a versatile raw material with great color and flavor qualities.