COMPOSITION OF CHIPS ENRICHED WITH BANANA *(Musa acuminata × Musa balbisiana)* PEELS

TECHNICAL FIELD OF THE UTILITY MODEL

The utility model relates in general to snack food products but more particularly to a composition of chips enriched with banana *(Musa acuminata × Musa balbisiana)* peels and seasoned with garlic and black pepper.

BACKGROUND OF THE UTILITY MODEL

Chips are one of the most popular snacks enjoyed around the world for their crunchy texture and satisfying taste, usually made from potatoes or regular bananas *(Musa acuminata × Musa balbisiana)*. However, unlike traditional banana *(Musa acuminata × Musa balbisiana)* chips that use the inner fruit, this utility model introduces an innovative approach by using banana *(Musa acuminata × Musa balbisiana)* peels—a part of the fruit that is often thrown away—as the main ingredient. The bananas *(Musa acuminata × Musa balbisiana)* used in this model are cooking bananas *(Musa acuminata × Musa balbisiana)* or plantains, which have thicker and more fibrous peels compared to regular dessert bananas *(Musa acuminata × Musa balbisiana)*. These peels are rich in fiber, antioxidants, and nutrients like potassium and vitamin C, making them a healthy and sustainable choice.

The invention with patent number ES2350558B1 discloses a process for obtaining a dietary compound rich in fiber and nutrients from banana peel. The present invention provides as a solution the use of banana peels for the production of flour rich in fiber and nutrients, intended for human consumption mainly. One of the advantages brought by the present invention is the use of waste from the food industry, which uses plantain as one of its raw materials, in products with nutritional potential for consumption by the population and reduction of the environmental impact caused. Therefore, the present

application describes a process for obtaining a flour from the banana peel rich in fiber and nutrients and the product obtained from it.

The invention with patent number CN115023143A disclosed comprising dehydrated green banana and/or plantain pulp and/or dehydrated non-pulp banana plant material. The product can be used as an animal or human feed product, a nutraceutical product or a component of a nutraceutical product. Methods for producing the products are also disclosed.

This utility model stands out by turning banana *(Musa acuminata* × *Musa balbisiana)* peels alone into crispy, preservative-free snack chips that are both delicious and functional. The chips are golden-brown, crunchy, naturally flavored, and designed to support digestive health, reduce food waste, and provide a better snacking option for health-conscious consumers. By avoiding artificial additives and aligning with government initiatives to promote sustainability and "natural" food production, this product offers an eco-friendly, farm-based solution that adds value to banana *(Musa acuminata* × *Musa balbisiana)* by-products while supporting nutrition, agriculture, and environmental goals.

SUMMARY OF THE UTILITY MODEL

This utility model discloses a composition of a healthy, sustainable snack chip using the banana peel of *Musa acuminata x balbisiana* (commonly known as saba or cooking banana). The formulation utilizes banana *(Musa acuminata* × *Musa balbisiana)* peels— an agricultural byproduct rich in fiber, antioxidants, potassium, and polyphenols— and transforms them into crispy, preservative-free chips through controlled drying or baking. The utility model addresses two main technical problems: Reducing food waste by using typically discarded banana *(Musa acuminata* × *Musa balbisiana)* peels, and creating a nutritious, natural snack without artificial additives or excess oil. The proposed method includes cleaning, blanching, slicing, and dehydrating banana *(Musa acuminata* × *Musa balbisiana)* peels to produce chips that are both palatable and health-

promoting, especially for consumers seeking fiber-rich, low-sugar, and eco-friendly alternatives to conventional snacks. This innovation not only supports zero-waste food processing, but also contributes to sustainable agriculture and healthier eating habits.

DETAILED DESCRIPTION

Chips made from banana *(Musa acuminata* × *Musa balbisiana)* peels are rich in dietary fiber, vitamins C and A, minerals such as potassium and calcium, antioxidants, and amino acids, which provide numerous health benefits, including aiding digestion and potentially lowering inflammation and cancer risk. While often discarded, banana *(Musa acuminata* × *Musa balbisiana)* peels are rich in fiber, potassium, vitamin C, and various bioactive compounds such as polyphenols and carotenoids, which contribute to these beneficial effects.

Chips that are made of banana *(Musa acuminata* × *Musa balbisiana)* peels consist of:

components	quantity
banana *(Musa acuminata* × *Musa balbisiana)* peels	400 grams
baking powder	44 grams
flour	360 grams
garlic powder	15 grams
black pepper	7 grams
salt	2 grams
oil	30 grams
water	170 grams

The composition is needed for the following steps of producing chips made of banana *(Musa acuminata* × *Musa balbisiana)* peels:

a. washing banana *(Musa acuminata* × *Musa balbisiana)* peels with fresh water;

b. trimming and removing stringy fibers from the banana *(Musa acuminata* × *Musa balbisiana)* peels;

c. boiling the banana *(Musa acuminata* × *Musa balbisiana)* peels for 10 minutes until soften;

d. draining the banana *(Musa acuminata* × *Musa balbisiana)* peels in a colander to remove excess water;

e. grinding the boiled banana *(Musa acuminata* × *Musa balbisiana)* peel and setting them aside;

f. weighing 400 grams ground banana *(Musa acuminata* × *Musa balbisiana)* peels, 44 grams baking powder, 360 grams flour, 15 grams garlic powder, 7 grams black pepper, 2 grams salt, 30 grams oil, and 170 grams water;

g. mixing the ground banana *(Musa acuminata* × *Musa balbisiana)* peels, baking powder, flour, garlic powder, black pepper, salt, oil and water, to obtain a homogenous mixture;

h. forming the mixture into dough and shaping it into desired shapes, preferably circular shapes;

i. cutting the shaped dough into strips; and

j. frying the dough strips until golden brown to produce chips enriched with banana peel.