WE CLAIM:

1. A process for making seaweed *(Kappaphycus alvarezii)* chips comprising the steps of:

a. preparing 100 grams of dried seaweeds *(Kappaphycus alvarezii)*;

b. washing dried seaweeds *(Kappaphycus alvarezii)* in 5 minutes;

c. soaking the washed dried seaweeds *(Kappaphycus alvarezii)* for 12 hours;

d. draining the soaked dried seaweeds *(Kappaphycus alvarezii)* for 3 minutes using strainer;

e. chopping finely the drained soaked dried seaweeds *(Kappaphycus alvarezii)*;

f. boiling the chopped seaweeds *(Kappaphycus alvarezii)* in 500 grams of water for 8 minutes;

g. cooling boiled seaweeds *(Kappaphycus alvarezii)* at room temperature for 20 minutes forming seaweed *(Kappaphycus alvarezii)* puree;

h. blending the seaweed *(Kappaphycus alvarezii)* puree with 250 grams of water, 12 grams of white pepper powder, 12 grams of garlic powder, 12 grams of flavour, and 24 grams of iodized salt forming seaweed *(Kappaphycus alvarezii)* puree mixture;

i. combining 1500 grams of sifted all-purpose flour with the seaweeds *(Kappaphycus alvarezii)* puree mixture to make a dough;

j. kneading the dough at 0.6mm thickness;

k. cutting the dough to triangular shapes with side length of 1.5 inches;

l. freezing the triangular dough for 3.5 hours;

m. heating of oil in 98 degrees Celsius for deep frying;

n. deep frying 150 grams of frozen triangular dough in 3000 grams of cooking oil for 2.5 minutes until golden brown color to form seaweed *(Kappaphycus alvarezii)* chips;

o. cooling the seaweed *(Kappaphycus alvarezii)* chips at room temperature for 15 minutes; and

p. dusting the seaweed *(Kappaphycus alvarezii)* chips with cheese, barbeque, spicy, or sour cream flavoured powder.

Process of Making Seaweed *(Kappaphycus alvarezii)* Chips

Technical Field of the Utility Model

This utility model relates generally to the field of food processing and snack food production, and more particularly to a process for producing edible chips enriched with seaweeds *(Kappaphycus alvarezii)*.

Background of the Utility Model

Snack foods such as chips are widely consumed due to their convenience, taste, and affordability. However, conventional chips are generally high in carbohydrates and fats while being low in essential nutrients, making them less suitable for health-conscious consumers. In response, there has been a growing demand for snack products that offer improved nutritional value while maintaining desirable sensory characteristics.

Seaweed is recognized as a nutrient-dense food source rich in minerals, dietary fiber, antioxidants, and bioactive compounds. Several seaweed-based snack products have been developed to address nutritional deficiencies in traditional snack foods. For example, PH Utility Model No. PH22020000239Y1 discloses a process for producing seaweed (*Gracilaria sp)* chips.

However, *Gracilaria species* are not uniformly available across all coastal regions of the Philippines. In contrast, *Kappaphycus alvarezii* is abundantly cultivated in Caluya, Antique, primarily for carrageenan extraction, and remains underutilized as a direct food ingredient. Existing chip-making processes are not optimized for this seaweed variety due to its distinct texture, moisture absorption, and gelatinous properties.

Accordingly, there is a need for a simple, economical, and reproducible process for producing chips enriched with *Kappaphycus alvarezii*, which not only

improves the nutritional profile of chips but also adds value to locally cultivated seaweeds *(Kappaphycus alvarezii)*, thereby increasing income opportunities for seaweed *(Kappaphycus alvarezii)* farmers.

Summary of the Utility Model

This utility model provides a novel and practical process for producing chips enriched with seaweeds *(Kappaphycus alvarezii)*. The process addresses the limitations of prior art by utilizing a locally abundant seaweed *(Kappaphycus alvarezii)* species and converting it into a stable puree that can be incorporated into a flour-based dough.

The technical solution involves washing, soaking, boiling, and blending dried seaweeds *(Kappaphycus alvarezii)* to form a seaweed *(Kappaphycus alvarezii)* puree, which is then mixed with flour and seasonings to produce a dough. The dough is formed into thin pieces, frozen, and deep-fried under controlled conditions to produce crispy seaweed *(Kappaphycus alvarezii)* chips.

The advantages of the utility model include improved nutritional content due to the incorporation of mineral-rich seaweed *(Kappaphycus alvarezii)*, utilization of locally abundant *Kappaphycus alvarezii*, reducing raw material costs, a simple and scalable production process suitable for small- and medium-scale enterprises, and enhanced livelihood opportunities for seaweed *(Kappaphycus alvarezii)* farmers through value-added processing.

The disclosed process is superior to prior art as it specifically adapts processing steps and proportions suitable for *Kappaphycus alvarezii*, resulting in consistent texture, taste, and shelf stability.

Detailed Description

Seaweeds is a general term used to describe many different species of algae and marine plants. It can grow in a variety of waters, including seas, lakes,

and rivers. Algae from the sea is generally edible, whereas freshwater varieties tend to be toxic. Seaweeds is rich in various minerals and trace elements. In fact, it often contains higher levels of these nutrients than most other foods. For this reason, many consider seaweed to be “the vegetable of the sea.” Seaweed also contains smaller amounts of several other nutrients. Iodine content can vary significantly between types, but one serving of seaweed can easily contain a day’s worth of iodine or more. Seaweed is a rich source of antioxidants. It also contains a good amount of sulfate polysaccharides which are beneficial plant compounds thought to contribute to seaweed’s health benefits.

Kappaphycus alvarezii is widely cultivated for their phycocolloid, ***kappa-*** and ***iota-***carrageenan. Carrageenan produced by these seaweeds *(Kappaphycus alvarezii)* is commercial importance in food, medical, and cosmetics industries. Seaweed *(Kappaphycus alvarezii)* is extremely high in beneficial compounds that, when applied to cropping systems—conventional and nutritional – work to build immunity and reduce the effects of common stresses such as drought, excessive heat, disease, insects and more.

In order to utilize and promote seaweeds *(Kappaphycus alvarezii)* which is one of the cultivated crops on the island of Caluya and to enrich the existing chips using seaweeds *(Kappaphycus alvarezii)*, it is necessary to provide a composition for its production.

The seaweed *(Kappaphycus alvarezii)* chips is produced compromising the following:

ingredients	quantity
All-purpose flour	1500 grams
water	250 grams
seaweed *(Kappaphycus alvarezii)* puree	1,092 grams
iodized salt	24 grams
white pepper powder	12 grams

garlic powder 12 grams

flavourings (cheese, spicy, barbeque, or sour cream) 12 grams

The chips enriched with seaweeds (*Kappaphycus alvarezii)* is made comprising of the following steps:

Dried seaweeds *(Kappaphycus alvarezii)* are purchased from the seaweed farmers and stockers of Caluya, Antique and neighbouring island.

Preparing the seaweeds *(Kappaphycus alvarezii)* puree

Preparing 100 grams of dried seaweeds *(Kappaphycus alvarezii)*;

Washing dried seaweeds *(Kappaphycus alvarezii)* 5 times in 5 minutes;

Soaking the dried seaweeds *(Kappaphycus alvarezii)* for 12 hours;

Draining the soaked dried seaweeds *(Kappaphycus alvarezii)* for 3 minutes using strainer;

Chopping finely the drained soaked dried seaweeds *(Kappaphycus alvarezii)*;

Boiling the chopped seaweeds *(Kappaphycus alvarezii)* in 500 grams of water for 8 minutes;

Cooling the boiled seaweeds *(Kappaphycus alvarezii)* at room temperature for 20 minutes forming 1,092 grams of seaweed *(Kappaphycus alvarezii)* puree.

Blending the 1,092 grams of seaweed *(Kappaphycus alvarezii)* puree with 250 grams of water, 12 grams of white pepper powder, 12 grams of garlic powder, 12 grams of flavour, and 24 grams of iodized salt forming seaweed puree mixture. Setting aside.

Preparing the seaweed *(Kappaphycus alvarezii)* chips

Combining 1500 grams of sifted all-purpose flour with the seaweeds *(Kappaphycus alvarezii)* puree mixture to make a dough;

Kneading the dough at 0.6mm thickness;

Cutting the dough to triangular shapes with side length of 1.5 inches;

Freezing the triangular dough for 3.5 hours;

Heating of oil in 98 degrees Celsius for deep frying;

Deep frying 150 grams of frozen triangular dough in 3000 grams of cooking oil for 2.5 minutes until golden brown color forming seaweed *(Kappaphycus alvarezii)* chips;

Cooling the seaweed *(Kappaphycus alvarezii)* chips at room temperature for 15 minutes;

Dusting the seaweed *(Kappaphycus alvarezii)* chips with cheese, barbeque, spicy, or sour cream flavoured powder;

Storing the packed seaweed *(Kappaphycus alvarezii)* chips at room temperature away from direct sunlight.