

KRIBAGOR (Fried Spinach Chips) is a Healthy and Nutritional Snack and Can Overcome Anemia

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ABSTRACT

Spinach is a type of vegetable that is highly nutritious and favored by all levels of society. The iron content in spinach is very high compared to other vegetables, so it is very good for consumption by people with anemia and pregnant women. Spinach can also be used by mothers as a solution for children who do not like to eat vegetables, by introducing spinach chips to these children. This PkM activity aims to increase the yield of spinach plants by farmers and the community can use spinach to make healthy and nutritious snacks for children and adults seen from the many benefits of spinach chips so it is very good if used as a side business for the community so that they can help the economy. The outputs of this PkM are creating Spinach Chips products that are rich in nutritional value, increasing the creativity of students and the community in processing spinach leaves into Spinach Chips, and printing an easy generation that can compete in the entrepreneurial field.

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INTRODUCTION

Spinach (*Amaranthus* spp.L.) is one of the vegetable commodities that are well known to various levels of society in Indonesia. Along with the rate of population growth and the fulfillment of the need for nutritious food, spinach is one of the vegetable commodities that can be relied upon to meet the needs for vitamins and minerals which are relatively easy and inexpensive. Spinach plants, especially seed spinach, are a very reliable source of vitamins and minerals. However, spinach plants which have prospects as a reliable source of vitamins and minerals in Indonesia have not been cultivated on a large scale (Hadisoeganda, 1996).

According to a plant physiologist from Australia John Downton researched and found that spinach seeds have a fairly high protein content, especially the amino acid lysine, which is usually lacking in other vegetable proteins. The protein content of spinach seeds was recorded at around 16%, while in wheat it was between 12-14%, in rice between 7-19%, and in corn between 9-10% (Downton 1972).

Spinach is a type of vegetable that is highly nutritious and favored by all levels of society. In addition, the price can be affordable by all levels of society because the price is relatively cheap. The iron content in spinach is very high compared to other vegetables, so it is very good for consumption by people with anemia and pregnant women.

The results of Suhada's research (2019) stated that spinach was effective in influencing changes in hemoglobin levels in adolescent girls at SMP 3 Kalasan, Sleman, and Yogyakarta. This is in line with the theory that spinach contains iron which is needed by the body for the process of forming hemoglobin. By

consuming spinach, a person will have hemoglobin levels within normal limits and can prevent anemia (Adriani, M., & Wijatmadi, B, 2014).

Calcium and iron in spinach are very important to overcome anemia (lack of blood). Vitamin K in spinach plays a role in the blood clotting process. Vitamin B complex, especially folate plays a role in preventing cardiovascular disease. The combination of folate and betaine contained in spinach can reduce the concentration of homocysteine in the body. Homocysteine is an essential amino acid that cannot be formed by the body (Hadisoeganda, 1996).

Spinach is also a type of vegetable that can be processed into chips for healthy snacks. Today many children do not like vegetables. So creative mothers can process spinach into chips which many children growl with so that children continue to eat vegetables every day. Viewed from the creative economy, processed spinach chips can also be used as a business product that can support the family economy.

Spinach chips mixed with palm sugar are a snack that has many benefits. Spinach is a vegetable that contains vitamins, protein, and minerals that are beneficial for the body. The business of spinach chips mixed with palm sugar has a very promising market opportunity because it is a relatively new culinary dish and there is no similar business so in the absence of competitors it will be easier to market spinach chip products in the community at an affordable price (Jakri, 2022).

Spinach chips are a relatively new snack when compared to banana and cassava chips. Making spinach chips by utilizing wild spinach plants that grow a lot around the yard so that it can be used as a delicious and nutritious snack and can also be used as an additional income (Nuramadani & Susanti, 2022). One of the steps to empower the community's economy is to produce products that have opportunities so that they can be of the sale value. Processed spinach chips are one of the innovations that can be used to empower the community's economy.

The purpose of this service activity is for students to be able to implement the knowledge that has been obtained and provide empowerment to the community to produce products that have opportunities so they can be of sale value, such as spinach chips.



Figure 1. Spinach Leaves

IMPLEMENTATION METHOD

The implementation of this program is carried out in Ruteng, Langke Rembong District from July 10 to August 20, 2022. The activities carried out are socializing the benefits of spinach, processing spinach in making chips, and marketing it. The sequence of stages carried out is as follows:

1. Preparation Stage

At this stage, the team agrees with partners to determine the time and place of the activity. Next, the team bought all the equipment and materials needed to make KRIBAGOR (Fried Spinach Chips). The ingredients needed are green spinach and red spinach, cooking oil, tapioca flour, rice flour, salt, eggs, garlic, lime leaves, locks, and candlenuts. The equipment needed is a cauldron, stove, filter, plastic for packaging, labels, and scales.



Figure 2. Preparation of materials for making KRIBAGOR

2. Implementation Stage

At the stage of starting to carry out activities, namely starting from sorting fresh spinach and perfectly shaped leaves, then making a dough of tapioca flour, rice flour, eggs, lime leaves, and mashed spices, namely candlenut, garlic, and locks. After preparing the dough, coat the spinach leaves into the prepared dough, then heat the cooking oil after the oil is hot then the spinach leaves that have been coated with flour are immediately fried until they become crispy, after that the spinach chips are filtered and drained for a few minutes so that the oil the former frying pan is not attached to the processed product. The drying of the oil on the spinach leaves aims to make the spinach chip product not easy to smell and also maintain its crispy texture. After the spinach chips have cooled, they are packaged using clear plastic packaging.

3. Product Marketing

Fried spinach chips products are packaged attractively using labeling on the packaging, in addition to attractive labeling here in the hope that the products we make can be recognized by wide consumers, so they are easy to find when needed. The name of this product is made according to the raw material that we process, namely KRIBAGOR "Fried Spinach Chips". KRIBAGOR (Fried Spinach Chips) that have been packaged are marketed in the campus environment such as in the canteen so that students and campus employees can buy this KRIBAGOR as a healthy and safe snack for consumption. In addition, this KRIBAGOR is also marketed in several school canteens and the nearest Puskesmas canteen. The marketing price of this product is very affordable for both children and adults, because there are 2,000 rupiahs per pack, 5,000 rupiahs, and 10,000 rupiahs, depending on the amount of content. Product marketing is also done online either through social media such as Facebook and WhatsApp.



Figure 3. Product packaging



Figure 4. Labeling on the packaging

4. Evaluation of activities

At this stage, the team evaluates the products that have been produced, namely the KRIBAGOR product, which is much liked by children at school, students, and the public who have purchased this product. By looking at this product as well, many people are interested and want to open a side business to increase income and people's interest in consuming spinach, especially children, considering that the benefits of spinach are not only used as a filling healthy snack, but spinach is also a type of vegetable that is delicious. has high iron so it can be used as a snack or vegetable that can overcome anemia. The results of this PkM activity are an increase in the knowledge and skills of partners and students in producing useful and useful products.

RESULTS AND DISCUSSION

Spinach is a type of vegetable that can be processed into chips to be used as a healthy snack. Today many children do not like vegetables. So creative mothers can process spinach into chips which many children growl with so that children continue to eat vegetables every day. Viewed from the creative economy, processed spinach chips can also be used as a business product that can support the family economy.

Spinach chips are a relatively new snack when compared to banana and cassava chips. Making spinach chips by utilizing wild spinach plants that grow a lot around the yard so that it can be used as a delicious and nutritious snack and can also be used as an additional income (Nuramadani & Susanti, 2022).

The iron content in spinach is very high compared to other vegetables, so it is very good for consumption by people with anemia and pregnant women. The results of previous studies stated that spinach was effective in influencing changes in hemoglobin levels in young women Suhada (2019). In line with the theory that spinach contains iron which is needed by the body for the process of forming hemoglobin. By consuming spinach, a person will have hemoglobin levels within normal limits and can prevent anemia (Adriani, M., & Wijatmadi, B, 2014).

Calcium and iron in spinach are very important to overcome anemia (lack of blood). Vitamin K in spinach plays a role in the blood clotting process. Vitamin B complex, especially folate plays a role in preventing cardiovascular disease. The combination of folate and betaine contained in spinach can reduce the concentration of homocysteine in the body. Homocysteine is an essential amino acid that cannot be formed by the body (Hadisoeganda, 1996).

Mothers can use spinach as a solution for children who do not like to eat vegetables, by introducing spinach chips to these children. Judging from the many benefits of spinach chips, it is very good if used as an effort for the community to help the economy.

KRIBAGOR products that have been marketed by the team are much liked by children and adults. The crunchy and savory taste also makes people addicted to buying it. By looking at this product as well, many people are interested and want to open a side business to increase income and people's interest in consuming spinach, especially children, considering that the benefits of spinach are not only used as a filling healthy snack, but spinach is also a type of vegetable that is delicious. has high iron so it can be used as a snack or vegetable that can overcome anemia.

CONCLUSION

Spinach is a type of vegetable that is highly nutritious and favored by all levels of society. The iron content in spinach is very high compared to other vegetables, so it is very good for consumption by people with anemia and pregnant women. Spinach can also be used by mothers as a solution for children who do not like to eat vegetables by introducing spinach chips to these children. KRIBAGOR products that have been marketed by the team are much liked by children and adults. The crunchy and savory taste also makes people addicted to buying it. Spinach Chips products can be used as a side business for the community to help the economy.

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