

Utilization of Moringa Leaf Extract in Processed Pudding Products as an Effort to Prevent Stunting in Debong Lor Village Tegal City

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Article Info

Article history:

Received August 27, 2024

Revised September 13, 2024

Accepted September 17, 2024

Keywords:

Nutrition

Pudding

Stunting

ABSTRACT

Stunting is a failure in the development and growth of children due to malnutrition. Nutrition is one of the determining factors for the growth and development of a child. Moringa plants are one of the plants that have high nutritional content, and their leaves can be used as one of the basic ingredients for food or beverage processing. The activity of providing supplementary food (PMT) in the form of moringa leaf pudding to prevent stunting was carried out in various posyandu in the Debong Lor Village, West Tegal District, with the participation of mothers who have toddlers/cludas and pregnant women. The method used in this service is the counseling method by providing supplementary food (PMT) and introducing one of the processed moringa leaves that can be useful to prevent stunting, namely moringa leaf pudding. The result of this activity is that young women have an interest in processing moringa leaves to prevent stunting.

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INTRODUCTION

Children must be an important asset for the progress of the nation and state in the future, because stunting is still the biggest problem for the progress and growth of a country. Stunting is a failure in the development and growth of children due to malnutrition. For a thousand days of human life, long-term nutritional deficiencies cause stunting. With the impact on the low quality of Human Resources, malnutrition in toddlers is one of the main problems in Indonesia. To avoid this problem in children between 6 and 24 months of age, nutritional improvements are needed. According to the Regulation of the Minister of Health of the Republic of Indonesia Number 2 of 2020 concerning

Child Anthropometric Standards, stunted toddlers are categorized as short or very short based on body length according to age (PB/U) and height according to age (TB/U) (Nuraina et al, 2019)

According to the results of Basic Health Research (Riskesmas) in 2021, the prevalence of stunting in Indonesia was 24,4%, down by 6,4% from 30,8% in 2018. To prevent long-term negative effects, such as stunting of children's growth and development, significant stunting reductions must be done as quickly as possible. Because stunting affects children's brain development, their level of intelligence will decrease. These risks causing a decrease in productivity as an adult. Children who suffer from stunting are also more susceptible to disease. They have a greater chance of suffering from chronic diseases in adulthood. Stunting and other nutritional problems are estimated to contribute to the loss of 2-3% of GDP every year (East Lombok Bapeda, 2019). According to UNICEF (2013) and the Indonesian Ministry of Health (2018), there are several causes of stunting, including:

- a. The direct causes are poor food intake and infectious diseases.
- b. Indirect causes are food security, parenting and environmental factors (Hoeriyah, 2021)

Moringa plant (*Moringa Oleifera*) is a plant native to India and is also known as the drumstick tree, the magic tree or the oil thread tree. It is a plant that grows in Asia, Africa, and South America, and has antifungal, antiviral, antidepressant, and anti-inflammatory properties. Moringa leaves contain many substances, such as protein, vitamin C, carotene, calcium, iron, and minerals (Rakha, 2021). Moringa plants are also known as medicinal plants because of their benefits from all parts of the plant, from leaves, bark, seeds to roots. Moringa leaves have an oval shape and stem as well as a small leaf size. Moringa stems thrive from lowlands to an altitude of 700 meters above sea level, reaching heights of 7 to 11 meters, and bright yellow flowers adorn the ends of the branches. Moringa plants do not need special land to be cultivated because they can grow anywhere. Moringa plants can be planted on the side of the road or on the fence. The way to plant it is very easy, namely just by planting a moringa stem branch and then putting it in the soil. Moringa can grow in all types of soils, both tropical and subtropical, and is resistant to dry seasons for up to six months.

Many people do not know the benefits of moringa leaves and only use them for clear curry. Moringa leaves have many benefits, but most people don't make good use of them. In addition to being consumed directly in a fresh state, moringa plants can also be processed into flour or powder that can be used as nutrients for various types of foods, such as puddings, cakes, nuggets, pastries, biscuits, crackers, etc. Pudding is one of the most popular desserts and is easy to make. Pudding is a processed food made with a mixture of gelatin powder, sugar and water. When it is made, fruits, vegetables, milk, nuts, and other ingredients are added. Everyone, from kids to adults, loves pudding because of its sweet taste and creamy texture. According to the results of the study (Fitriyanti & Mulyati, 2012). Moringa leaf pudding also has an impact on a person's body weight (BB). This is a functional food innovation used by those who don't like vegetables. Moringa leaf pudding tastes bitter without sugar, but palm sugar is used to make it as a natural sweetener and the addition of sugar makes the pudding softer. When compared to white sugar, palm sugar is free of the chemicals used in its manufacturing process, making it very suitable as a natural sweetener. In addition, the calories of palm sugar are even 30% lower in the cookie dough.

METHOD

Community service activities are part of the Real Work Lecture (KKN) program which is carried out at posyandu activities in Debong Lor Village. The activity carried out was to collect data on children who were indicated to be stunted in one of the West Tegal Districts, Debong Lor Village to see how large the stunting rate was and the extent to which the stunting rate could be prevented so that it did not spread. The next activity is to make pudding from moringa leaves and distribute it to pregnant women and toddlers in Debong Lor Village.

RESULTS

Activities on how to make and distribute moringa leaves were carried out at Posyandu Seruni I, Posyandu Seruni II, Posyandu Sartika, and Posyandu Mawar in Debong Lor Village, West Tegal District. The target of the activity is pregnant women and children in Debong Lor Village. The following are the stages of moringa leaf pudding making activities:

1. Preparation for the activity
 - a) Coordination to the Debong Lor Health Center
 - b) Prepare the materials and tools used
 - 1) Moringa leaves
 - 2) Gelatin powder
 - 3) Pineapple
 - 4) Vanilla
 - 5) Sugar/palm sugar
 - 6) UHT Milk
 - 7) Water
 - 8) Cornstarch
 - 9) Blender
 - 10) Pan
 - 11) Spatula
 - 12) Pudding cup
 - 13) Sieve
 - 14) Stove
 - 15) Spoon
2. Manufacturing process
 - a) Soak moringa leaves with salt for 15 minutes.
 - b) Wash the moringa leaves then remove and set aside the moringa leaves from the washing water.
 - c) After that, add 200 ml of water and then blend using a blender and then filter.
 - d) Then blend the pineapple until smooth and then strain.
 - e) Add moringa leaf extract, pineapple, gelatin powder, sugar, vanilla and UHT milk, stir until evenly distributed then boil until boiling.
 - f) Then the dough is poured into each cup of pudding that has been prepared, wait a few moments until it cools.
 - g) Moringa leaf pudding is ready to serve.



Figure 1. Processed Moringa Leaf Pudding

3. Map the location to determine the coordinate points of the activity.
4. Determining the schedule of activities.
5. Preparing the needs of facilities and infrastructure.
6. Implementation of activities.

This activity was carried out by presenting pregnant women and mothers who have baduta/toddlers who live in Debong Lor Village, West Tegal District. This activity is in the form of distributing moringa leaves and providing supplementary food (PMT) in the form of mung bean porridge to support the fulfillment of balanced nutrition and is important for the growth and development of clowns and toddlers. This activity went according to what had been planned. Based on the results of this activity, it was found that the distribution of supplementary food (PMT) in the form of mung bean porridge and moringa leaf pudding is very important in preventing stunting in clowns and toddlers. Based on research in Malawi, feeding in the form of Ready to Use Therapeutic Food (RUTF) with an energy content of 175 kcal/kgBB/day, protein gr/kgBB/day can contribute 75% of energy needs and 80% of protein needs in a day (WHO).



Figure 2. Distribution of Supplementary Food (PMT) and Moringa Leaf Pudding

DISCUSSION

Stunting is a chronic nutritional problem that causes children to lack nutritional intake for a long period of time, which interferes with their growth. Children with stunting have different growth than children their age. They tend to be smaller than others. However, many people believe that a short body is caused by genetics rather than health problems. However, when compared to environmental factors and health services, genetics has a greater impact on a person's health. Among the main causes of stunting are poor nutritional intake, recurrent infections, and inadequate feeding practices. Moringa leaves are very rich in nutrients, including vitamin A, vitamin C, calcium, potassium, and iron, which are essential for preventing anemia and improving nutritional status. In addition, because it is rich in nutrients, moringa leaves also have antioxidant, anti-inflammatory, and anti-microbial properties that are good for general health. Pudding is a food that is loved by people of all ages because of its delicious taste and soft texture. The addition of moringa leaf extract to pudding is an innovation that aims to increase its nutritional content and make it easier for children to eat.

CONCLUSION

In the implementation of the 2024 Alma Ata University KKN program in Debong Lor Village, it was carried out well and residents enthusiastically received it was carried out well and residents enthusiastically received supplementary food (PMT) in the form of pudding from moringa leaves. This activity includes coordination with the Debong Lor village head, coordination with the health center in Debong Lor and the distribution of additional supplementary food (PMT) in the form of moringa leaf pudding. Feeding moringa leaf pudding can be used as an alternative to the stunting rate reduction program in Debong Lor Village. Through the service that has been carried out, it is hoped that it can provide education to parents who have clowns or toddlers to continue to pay attention and provide high nutritious food intake to clown children and toddlers by utilizing natural resources in Debong Lor Village, one of which is moringa leaves. Moringa leaves are a nutritious plant that can prevent and reduce stunting rates. The distribution of processed pudding from moringa leaves to toddlers, clowns and pregnant women in Debong Lor Village, West Tegal District went well. With this activity, it is hoped that the people of Debong Lor, especially pregnant women and mothers who have toddlers or clowns, can make processed moringa leaves which are useful for preventing stunting, so that children are prevented from stunting.

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