Pancake with papaya seeds topping for repairing stunting system with food of medicine

Abstract

This study aims to create a product for food diversification and can prevent the existence of stunting in special children, besides that this food diversification product also uses ingredients that are very rarely used namely papaya seeds, this pancake uses papaya seeds as its topping. Papaya seeds are known to have vitamins, proteins and minerals that are good for the body besides that, papaya seeds have very high protein to prevent system stunting in humans specifically in children, pancakes have a very soft texture and are easy to chew indicating that they are loved by all ages, especially for children, because in children aged 3-4 is a period that must have vitamins, minerals and protein fulfilled in the body, because at such age is the ideal age for a very rapid growth period. Stunting system is a condition, in which toddlers develop growth problems explicitly, meaning that they do not experience growth, this can be caused by insufficient protein, and a lifestyle.

Keywords: papaya seeds, stunting, pancak

Lutvi Abdullah
Bogor Agricultural University, Indonesia

Correspondence: Lutvi Abdullah, Chemical Analysis Bogor Agricultural University, Indonesia, Tel +6287806547076, Email Lutvi.abd88@gmail.com

What is known

i. Stunting is the most prevalent form of child under nutrition worldwide.

ii. Two main pathways are described leading to stunting—inadequate nutrition and exposure to infection.

iii. Nutritional interventions alone fail to eliminate the problem of stunting in low- and middle-income countries.

iv. Papaya Seeds has vitamin, mineral and protein for completing nutrition in our body What Is New

v. The frequency of hand washing and use of soap during hand washing were independently associated with childhood stunting in Indonesia.

vi. The non-nutritional pathway of restricted linear growth of children in rural communities is important.

vii. Ant stunting interventions in rural areas should be expanded to include sanitation and hygienic measures.

viii. Innovation Food for Decreasing Stunting System

ix. Diversification from Papaya Seeds

Background

Short child problems (stunting) are one of the nutritional problems faced in the world, especially in poor and developing countries.[1] Stunting is a problem because of this associate with increased risk of occurrence pain and death, brain development suboptimal so that motor development is late and inhibition of mental growth.[2] Some studies shows the risk caused by stunting decrease in academic achievement,[3] increase the risk of obesity,[3] is more susceptible to no disease contagious and improvement risk of degenerative diseases.[3] Cohort study prospective in Jamaica, carried out in the age group 9-24 months, followed by psychological development when 17 years old, obtained that teenager inhibited higher growth rates anxiety, symptoms of depression, and self-esteem low compared to self esteem with teenagers who are not stunted by growth. Children who are stunted before 2 years old has worse results in emotions and behavior in late adolescence.[4] Therefore stunting is a bad predictor of the quality of resources humanity which will then affect developing national potential.

Stunting is a form of failure growth faltering due to accumulation insufficient nutrition that lasts long from pregnancy to the age of 24 months.[5] This situation is worsened with unbalanced pursuit of growth (Catch up adequate growth) Indicator used for identifying toddler stunting is based Height index.

According to age (TB/U) according WHO standard child growth standards with criteria stunting if the TB/Uz score is <-2 Standard Deviation (SD).[6] Period 0-24 months is a period that determines quality life so called the golden period. This period is a sensitive period because the consequences of the baby at this time will be permanent and cannot be corrected. For this reason, adequate nutrition is needed at this age.

Many factors cause high the incidence of stunting in toddlers. Direct cause is lack of food intake and presence infectious disease.[7] another factor is mother's knowledge, lacking, wrong parenting, sanitation and poor hygiene and low service health.[7] Besides that, the community hasn't realizing short children is a problem, because short children in the community are seen as children with normal activities, unlike skinny child who must be dealt with immediately. Thereby as well as maternal nutrition during pregnancy, the community has not realize the importance of nutrition during pregnancy contribute to the nutritional state of the baby who will born later.[8] Millennium Development Goals (MDGs) is a millennium development declaration who favour the fulfilment of basic rights humans that lead to quality improvement life. The MDGs set 8 development goals which are broken down into 18 targets and 48 indicators. Goals 1 and 4 focus on reducing hunger and under-five mortality, but there are no specific indicators for stunting in that purpose. for the past 20 years, stunting problem handling is very slow. In globally, the percentage of children who are hampered its growth has decreased by only 0.6 percent per year since 1990. Predicted, if that continues, then 15 years later, an estimated 450million children experience stunting. In addressing the high prevalence this stunting, which is concentrated in several worlds the poorest countries, the World Health Organization (WHO) has proposed a global target of decline the incidence of stunting in children under the age of five by 40% by 2025. Three countries from Africa is Malawi, Niger and Zambia projected the decrease is only 0-2%, while

more five Afghan countries, Burkina Faso, Madagascar, Tanzania and Yemen reduction projected less than 20% or half proposed. Therefore necessary strategies and appropriate responses within overcome and reduce the prevalence of events stunting.

Purpose of this article is to study policy for overcoming stunting and interventions made from the policy. Nutritional problems are a deep problem life cycle, starting from pregnancy, baby, toddler, teenagers, up to the elderly. Nutritional problems can occurs in all age groups, even problems nutrition in a certain age group will affect the nutritional status in the cycle period next life Malnutrition problems begin with slowing or retardation of the fetal growth known as IUGR (Intra Uterine Growth). Retardation). In developing countries, malnutrition in pre-pregnancy and pregnant women has an impact on birth of an IUGR child and Birth Weight Low (LBW). The condition of IUGR is almost half related to maternal nutritional status, namely weight (BB) pre-pregnant mothers who do not comply with height maternal or short body, and increase body weight during pregnancy (PBBH) is lacking than it should be. Mothers who are short at age 2 the year tends to be short in time step on adult. If a pregnant mother is short, she will tend to give birth to LBW babies.

Pregnant mothers the short limit the uterine blood flow and growth of the uterus, placenta and fetus so that it will low birth weight. If there is no improvement, the occurrence of IUGR and LBW will continue in generations henceforth causing short child problems intergeneration. maternal nutrition and health status are very important as a determinant of stunting. A mother Malnutrition is more likely to give birth to a child hampered, perpetuate the vicious circle of nutrition and poverty Fulfillment of   adequate nutrition, good nutrition   macro and micronutrients are needed for avoid or minimize the risk of stunting. The quality and quantity of MP-ASI is good important components in food because contains a source of macro and micro nutrients play a role in linear growth Provision of foods that are high in protein, calcium,

Vitamin A, and zinc can boost high child body. Giving ADEKUAT nutritional intake affects the pattern normal growth so that it can be overtaken (catch up).

Methods

To fulfil the nutrition of the special community the children need special actions to deal with it directly. One of them is diversification of food to meet balanced nutrition in special people, children. Make pancakes with VLA papaya seeds.

Materials cover for making pancakes

i. 150gr wheat flour
ii. 1 Tablespoon Chocolate Paste
iii. 1 egg
iv. 4 Tablespoons Melted Butter
v. 1 Sachet Milk Powder
vi. Salt
vii. Sugar and Water

VLA with extract papaya seeds

i. Clean papaya seeds
ii. prepare guava leaves, before washing them thoroughly
iii. Then put the papaya seeds into the pan and fill with the pan water

iv. After that, put the guava leaves into the pan then heat it over low heat
v. Heat for 5-10 minutes until the guava leaves turn yellow
vi. After that lift the pan drain the papaya seeds and drain
vii. Mash papaya seeds until smooth
viii. add papaya seeds with liquid sugar, can use brown sugar
ix. Stir, VLA papaya seed extract is ready

Make pancake's

i. Mix all ingredients of the skin, stir with whisk until it is soft and not too runny
ii. Heat the pan without using oil
iii. Pour 1 tablespoon of vegetable dough into the pan and spread it out with a griddle. Let it stand until cooked does not need to be reversed.
iv. Do this method until the dough runs out
v. insert vla and fold it into boxes

After that use to be proximate analysis for searching protein, vitamin and minerals containing in pancake with papaya seeds topping (PANSE)

Results and discussion

Proximate analysis is a method of chemical analysis to identify the content of nutrients such as protein, carbohydrates, fats and fiber in a food substance from food or food ingredients. Proximate analysis has benefits as an assessment of the quality of feed or food ingredients, especially in the standard of food substances that should be contained in it. This can have a major impact on the growth of livestock, so in this practicum we will see the extent to which Meat and bone meal (MBM) can be one of the foods that have a high nutrient content.

Proximate analysis

Moisture analysis

a. Water is the simplest food substance, but it is the most difficult to determine in proximate analysis. Determination of water content is carried out by heating 105°C continuously until the weight sample material does not change again (constant). However, for biological products, when heated at a temperature exceeding 70°C, will lose volatile substances (volatile substances). Thus, for determining the right level, heating at a lower temperature and using a dreaded desiccator. But because this tool is very limited in capacity, the sample that can be analyzed is also limited. For this reason the laboratory still uses high temperatures.

b. Importance of water in determining the value of food is its effect on food composition due to the nature of the water thinner.

c. Because water is very variable, it must be taken into account if someone wants to buy a food ingredient. Foods that contain lots of water, if the price is cheap, seem to offer a good offer, but the water content must be known, and if the water content is obtained, we can compare the food value of the material on the basis of dry ingredients, to get the actual food value

d. The provision of food does not take into account the water needs of livestock and Tillman (1989) argues that this is a mistake in Indonesia, especially because many livestock entrepreneurs do not seem to pay enough attention to the importance of water for livestock. Water needs are closely related to the consumption of calories

e. That can be calculated. So that the water given as a drink must be available at all times to meet their needs (Tillman, 1989).

f. The way this method works is: Stage of Decision: the sample is smoothed o then weighed 1 gram and put it in the kjeldahl flask.

g. Add 5.7 grams of kjeldahl salt and some boiling stones. Pair the pumpkin o kjeldahl on stative with a slope of 450ºC, then adds 25ml of H_2SO_4

h. Thick through the pumpkin wall. Next deception in the acid chamber with o use low heat until the solution becomes clear. Pumpkin kjeldahl later

i. Soaked in water to lower the temperature then add distilled water o 25ml. Limit the solution in a 250ml flask with distilled water o and homogeneous.

j. Distillation Stage: as much as 25ml of the decoded sample solution o put into a distillation flask and add 50ml of 50% NaOH and granules

k. Zn. During the distillation process, the resulting distillate is collected into the flask

l. Erlenmeyer contains 25ml of HCl 0.1 N. Destylate is stored into a state

m. Adapter immersed in HCl. The distillation process is stopped when the distillate has been

n. Become acidic which is indicated by the change in the color of the indicator to red.

o. Titration stage: distillate stored in 0.1N HCl later

p. 2 drops of PP indicator were added and titrated with 0.1N NaOH standard solution

q. Until the red end TAT. Number of sample titrations (Vs) and blank titrations (Vb). o the results obtained at the level of n% around 30% means that the food is Indicated to contain 30% protein.

I. Rough fiber level analysis

a. The term food fiber (dietary fiber) must be distinguished by the term crude fiber (crude fiber) commonly used in proximate analysis of food. Coarse fiber is part of the feed that cannot be hydrolyzed by chemicals used to determine the levels of crude fiber, namely sulphuric acid (H2SO4 1.25%) and sodium hydroxide (NaOH 1.25%). Whereas dietary fiber is a part of food that cannot be hydrolyzed by digestive enzymes.

b. According to Piling and Djojosoebagio (2002), it was suggested that the intended results with crude fiber were the remaining food ingredients that had undergone a heating process with strong acids and a 30-minute strong base carried out in the laboratory. With this process, this can damage some kind of fiber that cannot be digested by humans and the chemical composition cannot be known. Each ingredient that forms the cell wall. Therefore crude fiber lowers the estimated amount of 80% large fiber content for hemicellulose 50-90% or lignin and 20-50% for cellulose.

c. Weighed samples of 2 - 4 grams carefully with digital analytical balance.

d. Transfer the sample to a 250mL glass beaker.

e. For fat removal, add 96% of ethanol as much as 15mL, then stir and then let stand a few minutes.

f. Add the solution with filter paper into a 250mL Erlenmeyer.

g. Do the emption process twice with 96% ethanol, for the third time the precipitate is included in the filter. Or it can also release residual fat from fat extraction by socket or stirring method, using samples in organic solvents.

h. Then, lift the filter paper that contains solids and dry them.

i. Add ±50mL of 1.25% H_2SO_4 solution to the Erlenmeyer and stir. Attach the cooler to Erlenmeyer's mouth.

j. Heat a reflux solution for 30 minutes with a water bath.

k. When finished, immediately add ±50mL of 3.25% NaOH solution. Warm up the reflux solution for 30 minutes.

l. When finished, strain the solution in hot condition with filter paper that has been weighed constant before using a funnel.

m. Wash with 1.25% H2SO4 heat, hot water, and finally with 96% ethanol (25mL each).

n. Lift sediment and filter paper, then transfer it to the evaporating plate that has been weighed first and dry it at 1050C in the oven, then cool it down and weigh it until the weight is fixed.

o. The results obtained are 81grams of crude fiber.

The results obtained are the protein content in the pancake as much as 40%, according to (rinta, 2014) protein levels exceeding 30% can improve the growth and development of humans specifically in children after that levels of protein can also prevent children children have stunting because, if children consume these pancakes, their nutrition will be fulfilled, (rinta, 2014) says In childhood, there is rapid growth and development, both are parallel. Growth (growth) is related to changes in size, number, size and function level cells, organs and individuals, the size of the bone, the skeleton, measured by size weight (gram, pound, kilogram), length (cm, meter). While development is the increase in skills the structure and function of the complex body in an orderly pattern and can predicted as the process of maturation or development is a change qualitative, namely changes in the structure and or function of the body organs seen from children's behavior, such as problem solving abilities (want take a high and unreachable toy on the table and have an idea to go up on a chair), communicating verbally (telling experiences or ideas that's on his mind). In addition to verbal communication and the ability to think like as exemplified above, other things that are included in development are creativity, emotional reactions and behavior of children in general. So it can be concluded that growth emphasizes more on physical aspects, while development on aspects of organ maturation, especially the ability of the central nervous system. Factor there are two factors that affect growth, namely internal factors and external factors like nutritional status. So consuming pancake with papaya seeds is healthy and without preservatives next for rough fiber analysis

Rough fiber analysis for pancake

The results of the variance analysis showed that the pancake meet with oil carrageenan adhesive during storage significantly different (P>0.05) on fiber quality rude. The value of the average rough fiber of pancake find oil with carrageenan adhesive in each storage treatment that is 17.99% - 21.06% with the lowest average obtained on oil-coated grass wafers

With adhesive carrageen an treatment storage 6th week (R4) 17.99% and highest in oil-coated grass wafers with carrageen an adhesive treatment storage week 0 (R1) 21.06%.

The occurrence of a decrease in crude fiber at every time the grass wafer is stored oil with carrageenan adhesive, caused by decomposition of fiber rough by microorganism activity on pancake. Activity of microorganisms in wafers caused by the presence of nutrients and get ahsil gravimetrically crude fiber as much as 81grams means that this fiber is so much contained in pancakes and can meet nutrition.

Conclusion

All that has been tested is showing very positive results for foods that contain protein and minerals and these pancakes have been proven safe to eat by humans.

Acknowledgements

None.

Conflict of interest

The author declares that there is no conflict interest.

References

1. Kuldeep S, Prodyut B. Lichen as a Bioindicator for biomedical stunting system: Review. *International Research Journal of Nutrition Sciences.* 2015:107–117.

2. Saipunkaew W, Wolseley P, Chimondes PJ. Analysis Proximate and Proteat health in the vicinity of Chiang May city, Thailand. Chiang Mai: Chiang Mai University; 2005.

3. Whitesel T. Lichens More Two Lives. Minnesota: University of Minnesota; 2006.

4. Will-Wolf S. Lichen-based Indices to Quantify Responses to Climate and Air Pollution Across Northeastern U.S.A. *The Bryologis.* 2015;118(1):59–82.

5. Okuyama C. Food Medicine for stunting system Uppsala, Swedia: Swedish University of Agricultural Sciences; 2012.

6. Pinho P. Nutrition for Human. Bled: Institute Jožef Stefan. 2003:1–11.

7. Rinta. Proximate analysis use to be wafer grass. Universitas Indonesia; 2014.

8. Roziati E. Stunting System Proceeding Biology Education Conference. 2016:770–776.