

Formulation of Phaleria Macrocarpa Extract as a Non-Pharmacologic Therapy in Preventive Diabetes Mellitus in West Aceh District

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ABSTRACT

Diabetes Mellitus (DM) is a serious health problem throughout the world which is also a source of degenerative diseases such as stroke and heart disease. DM is a group of diseases that attack the metabolic system characterized by hyperglycemia that occurs due to abnormalities in insulin secretion, insulin action, or affecting both. Current DM treatment includes physical exercise and pharmacological therapy. Pharmacological therapy, consisting of drugs given orally or in the form of injections (American Diabetes Association, 2014). Non-communicable diseases (NCDs) show a tendency to increase all the time. Changes in infection design are greatly influenced by climate change, local behavior, segment progress, financial and socio-social. DM sufferers in Aceh in 2019 were 138,291 sufferers, while those who received services according to standards were 95,005 or 69%. West Aceh Regency is one of the districts with the highest number of DM cases, with 13,803 sufferers. The aim of the research was to test and formulate the crown of the god's fruit extract and to produce it as an herbal drink to prevent diabetes. The stages of the research included the manufacture of the fruit of the crown of the gods simplicia, then the simplicial was characterized, including testing the determination of water content, ash content, and yield results. The simplicia was extracted to become a dry extract and tested for water content, ash content, phytochemicals (alkaloids, flavonoids, tannins, saponins) and total flavonoid content. The research was conducted for 1 year, starting from March to December 2023. The aim of the research was to test and formulate a crown of god fruit extract and produce it as herbal drink to prevent diabetes and to analyze changes in glucose levels in the blood of diabetes mellitus sufferers in West Aceh Regency. Based on the results of a survey on people's consumption patterns in Meureubo District, West Aceh Regency, it can show the level of community food diversity. The results obtained provide an overview of the food consumption patterns of Diabetes Mellitus sufferers who follow the diet. Most people with diabetes mellitus in Meureubo District, West Aceh Regency, still eat the type of food that contains a lot of sugar, which is consumed almost every day (100%) even though the type of food that contains a lot of sugar, fat and sodium can have adverse effects on the health of people with diabetes mellitus. It is recommended for people with diabetes mellitus to carry out routine checks of blood glucose levels and consult a nutritionist to find out the progress of the disease and to prevent further complications.

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1. INTRODUCTION

It is estimated that diabetes mellitus will continue to increase in Asian countries, reaching 592 million in 2035, but around 46% of diabetes mellitus cases are estimated to remain undiagnosed. Data from the International Diabetes Federation (IDF, 2014) reports that the diabetes mellitus population in Southeast Asia and the West Pacific region has a prevalence of diabetes mellitus of 11.3%, 8.8% and 7.9% respectively. Studies report that 60% of the world's diabetes population is from Asia.

In 2019, there were 138,291 DM sufferers in Aceh, while those who received services according to standards were 95,005 or 69%. For West Aceh District, it is one of the districts with the highest DM cases with 13,803 sufferers. (Prov. Aceh Health Office Profile. 2019).

Diabetes Mellitus (DM) is a serious health problem throughout the world which is also a source of degenerative diseases such as stroke and heart disease. DM is a group of diseases that attack the metabolic system characterized by hyperglycemia that occurs due to abnormalities in insulin secretion, insulin action, or both. Current DM treatment includes physical exercise and pharmacological therapy.

Pharmacological therapy, consists of drugs given orally or in the form of injections [1].

Functional food is food that naturally or through processes contains one or more compounds that based on scientific studies, are considered to have certain physiological functions that are beneficial for health. Functional food is consumed like food or drink, has sensory characteristics in the form of appearance, color, texture and taste that are acceptable to consumers, and does not provide contraindications and side effects on the metabolism of other nutrients if used in recommended amounts [2].

Based on the problems mentioned above, the authors are interested in studying more deeply scientifically regarding the effect of the crown of the god fruit extract as a Non-Pharmacological Therapy in Preventive Diabetes Mellitus on reducing blood pressure in diabetics in West Aceh Regency. The urgency of this research is a manifestation of the concern of academics in the field of public health science who have the principle of prevention of non-communicable diseases Diabetes Mellitus so that they can be detected as early as possible, primary prevention and full service of diabetes by utilizing local food commodities which are also in line with the International Diabetes Federation (IDF).

TABLE I: FOOD FREQUENCY FORM CONTAINS A LOT OF FAT

Food ingredient name	Frequency of consumption									
	1-3x/Days		4-5x/Days		1-3x/bln		Never consumed		Ket	
	n	%	n	%	n	%	n	%	n	%
Contains a lot of Fat:										
a. All foods that are processed by frying	63	100	63	100	63	100	0	0	63	100
b. Fast Food	5	7.9	4	6.3	35	55.5	0	0	63	100

Note: Primary Data: Processed in 2023.

TABLE II: FOOD FREQUENCY FORM CONTAINS A LOT OF SUGAR

Food ingredient name	Frequency of consumption									
	1-3x/Days		4-5x/Days		1-3x/bln		Never consumed		Ket	
	n	%	n	%	n	%	n	%	n	%
Contains a lot of sugar:										
a. Sugar	63	100	46	73	54	85.7	0	0	63	100
b. Red Sugar	58	92	62	98	63	100	0	0	63	100
c. Soft drink	38	60.3	5	7.9	2	3.1	0	0	63	100
d. Jam	20	31.7	20	31.7	5	7.9	0	0	63	100
e. Jelly	4	6.3	11	17.4	30	47.6	0	0	63	100
f. Fruit preserved in sugar	5	7.9	8	12.9	32	50.7	0	0	63	100
g. Sweetened condensed milk/Krimer	10	15.8	32	50.7	3	4.7	0	0	63	100
h. Ice Cream	0	0	1	1.5	1	1.5	0	0	63	100
i. Sweet Cakes	39	62	41	65	44	69.8	0	0	63	100
j. Dodol/Lempok	5	7.9	30	47.6	10	15.8	0	0	63	100
k. Cake/Bolu	2	3.1	8	12.6	35	55.5	0	0	63	100
l. Chocolate	1	1.5	4	6.34	40	63.4	0	0	63	100

Note: Primary Data: Processed in 2023.

TABLE III: FOOD FREQUENCY FORM CONTAINS LOTS OF SODIUM

Food ingredient name	Frequency of consumption									
	1–3x/Days		4–5x/Days		1–3x/bln		Never consumed		Ket	
	n	%	n	%	n	%	n	%	n	%
Contains lots of sodium:										
a. Salted fish	1	1.5	20	31.7	23	36.5	1	1.5	63	100
b. Salted egg	0	0	11	17.4	34	53.9	0	0	63	100
c. Preserved food	0	0	13	20.6	32	50.7	0	0	63	100

Note: Primary Data: Processed in 2023.

2. METHODOLOGY

The 2023 plan map is to identify a number of people with diabetes mellitus in West Aceh District by analyzing risk factors, namely diet with diabetes. Primary and secondary data collection will be assisted by health workers who already know well the socio-demographic conditions in each village. Then the results of the data collection are processed and the root of the problem in the sufferer's diet will be obtained. The test results were continued by looking at food recall in 63 sufferers who were at risk of diabetes. Food recall is carried out for 1 month by looking at the quantity and quality of food consumed by sufferers. then the processing of the extract of the dewa fruit syrup as a home formulation to improve the quantity and quality of the diet of diabetics. Then proceed with a study of the crown of the god fruit extract into an herbal drink to prevent diabetes and re-monitoring the diet for 1 month in patients, so that the quantity and quality of a good diet can reduce blood sugar levels in sufferers. The herbal drink of Mahkota dewa fruit extract as a home formulation can be prepared and served independently.

3. RESULTS

The data above shows that respondents' food consumption patterns vary slightly, with 55.5% of respondents consuming Fast Food every day. All (100%) respondents consume all foods that are processed by frying (see Table I).

Based on the results of interviews with respondents, consumption patterns of foods containing sugar also varied greatly within a period of 1 month, including; Granulated sugar as much as 85.7%, Javanese sugar/sugar/palm as much as 100%, Syrup/Soft Drinks/Packaged drinks as much as 3.1%, Jam as much as 7.9%, Jelly/Agar/Sweet Pudding as much as 47.6%, Candied Fruit/Fruit preserved with sugar as much as 50.7%, Sweetened Condensed Milk/Sweet Condensed Creamer as much as 4.7%, Ice Cream as much as 1.5%, Sweet Cakes as much as 69.8%, Dodol/Lempok as much as 15.8%, Cake/Bolu as much as 55.5%, Chocolate as much as 63.4% (see Table II).

Based on the results of interviews with respondents, the pattern of consumption of foodstuffs containing lots of sodium varies within a period of 1 month, including; Salted Fish 36.5%, Salted Egg 53.9%, Canned food/preserved food 50.7% (see Table III).

4. CONCLUSION

Most people with diabetes mellitus in Meuruebo District, West Aceh Regency still eat the types of foods that contain a lot of sugar, which are consumed almost every day (100%) even though the types of foods that contain a lot of sugar, fat and sodium can have adverse effects on the health of people with diabetes mellitus.

It is recommended for people with diabetes mellitus to carry out routine checks of blood glucose levels and consult a nutritionist to find out the progress of the disease and to prevent further complications. Diabetes mellitus sufferers are advised to limit and avoid foods that use pure sugar in food and drinks, diabetes mellitus sufferers can use alternative sugar/artificial sweeteners in serving foods and drinks that contain low calories.

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CONFLICT OF INTEREST

The authors declare that they do not have any conflict of interest.

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