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Effectiveness Of Decoction Of Ciplukan Plants (Physalis Angulata L) As Anti-Hypercholesterolemia In Rundeng Village, Johan Pahlawan District, West Aceh Regency

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ABSTRACT

Hypercholesterolemia has become a health problem in developing countries such as Europe, America and Southeast Asia. Hypercholesterolemia can be reduced with non-pharmacological therapy, one of which is by consuming a decoction of the Ciplukan Plant (Physalis Angulata L). The Ciplukan plant (Physalis angulata L) contains many secondary metabolite compounds, namely flavonoids and phenolics such as physalin, physagulin, beta-carotene, myricetin, oleanolic acid and quercetin which have very good effectiveness in reducing plasma lipid levels in sufferers of hypercholesterolemia. The aim of this research was to determine the effectiveness of a decoction of the Ciplukan plant (Physalis Angulata L) as an antihypercholesterolemia in Rundeng Village, Johan Pahlawan District, West Aceh Regency. The design used was "Quasi experimental pre test and post test one group". Simple in this research were all hypercholesterol sufferers in Rundeng village, totaling 40 people, using the Willcoxon test. Drink a decoction of the Ciplukan Plant (Physalis Angulata L) three times a week for 1 month. The results of the research show that there is effectiveness of a decoction of the Ciplukan Plant (Physalis Angulata L) as antihypercholesterolemia in Rundeng Village, Johan Pahlawan District, West Aceh Regency with a P-Value of 0.000 > α 0.05. A decoction of the Ciplukan Plant (Physalis Angulata L) as an anti-hypercholesterolemia can be used as a non-pharmacological therapy to reduce cholesterol levels.

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1. Introduction

Based on WHO data in 2020, hypercholesterolemia has become a health problem in developing countries. The highest is in Europe, followed by America, and the lowest is Southeast Asia. Deaths caused by hypercholesterolemia reached 2.6 million people (4.5% of total deaths) and 29.7 million people experienced the inability to live a normal life (WHO, 2020). The National Cholesterol Education Program (NCEP) in the Adult Treatment Panel III (ATP-III) in 2001 determined the threshold for normal or abnormal total cholesterol levels. The explanation is that total cholesterol levels are categorized as normal <200 mg/dl, borderline 200-239 mg/dl, and high >240 mg/dl (Siregar et al., 2020).

The proportion of hypercholesterolemia levels in Indonesia in the population aged ≥ 15 in 2022 has a prevalence of 20.0%. The prevalence based on residence in urban areas is 22.1%. The percentage of high cholesterol according to age is mostly in the 55-64 year age group at 29.2%. The highest proportion of total cholesterol levels based on gender is 24.0% for women and 18.3% for men (RISKESDAS, 2018). High cholesterol is a condition where the total cholesterol level is 190 mg/dL or more. The percentage of high cholesterol recorded at integrated development posts (posbindu) for PTM and community health centers that have used the PTM surveillance information system according to gender, in men is 48%, while in women it is 54.3%, the percentage of high cholesterol according to age is mostly in this age group. >60 years is 58.7% according to provincial data, the percentage of visitors with high cholesterol at posbindu and FKTP in Indonesia is highest in West Papua province, namely 70% (KEMENKES, 2022) (L et al., 2020).

Based on the 2019 Aceh health profile, it shows that the prevalence of high cholesterolsufferers is 47.9%. The highest districts with high cholesterol rates are West Aceh at 13.4%, East Aceh at 12.9%, Bireuen at 10.6% and Banda Aceh at 9.8% (Aceh, 2019). There are two treatment methods that can be used for people with high cholesterol, such as pharmacological treatment (reducing cholesterol levels) and non-pharmacological treatment (weight control, regular physical activity, healthy living, reducing saturated fat intake, and increasing fiber intake) (Khusuma et al., 2020). Traditional medicine is a legacy handed down from ancestors which is deeply rooted in national culture and in medicine, such as ciplukan (phisalis angulate L), one of the plants that thrives wildly in settlements, although it grows wild, ciplukan has a multitude of properties that are very good for body health (Laia, 2023) (Wahyuni et al., 2023).

Ciplukan is a medicinal plant that has been clinically proven to contain active ingredients, namely steroids, flavonoids and alkaloids which have antioxidant properties. Ciplukan also hassecondary metabolite compounds produced by the plant (Fabiola C. Maweikere1, Reiny A. Tumbol2, Revol D. Monijung2, Henky Manoppo2, Reni L. Kreckhoff2, 2022). The results of the initial survey data showed that the incidence of cholesterol from February- March was 40 people and of the 10 people interviewed, 7 out of 10 people said they often experienced neck stiffness, pain and muscle stiffness, 3 out of 10 people said they often had dizziness andweakness and 10 people said the same. -sama said this situation occurs when cholesterol levels are high.

2. Methods

This research used a pre-experimental method with a one group pretest-posttest design. This research design includes a pretest before treatment and a posttest after treatment (Notoatmodjo, 2018). This allows a more accurate assessment by comparing conditions before and after intervention. The sampling technique used was total sampling, with 40 respondents experiencing hypercholesterolemia.

3. Results and Discussion

3.1 Results

The results of this research are a reassessment of the validity of research results on the effectiveness of a decoction of the ciplukan plant (Physalis Angulata L.) against hypercholesterolemia. The discussion of the research results can be explained as the researcher's initial thoughts to provide an explanation and interpretation of the research results which have been analyzed between drinking a decoction of the ciplukan plant (Physalis Angulata L.) and anti-hypercholesterolemia.

a. Demographic Data

Table 1 Frequency distribution of gender, age and occupation

Variable	F	%
GENDER		
Man	6	15.0
Woman	34	85.0
AGE		
Teenagers (18-25 years)	2	5.0
Adult (26-45 years)	7	17.5
Elderly (>46 years)	31	77.5
WORK		
Student	2	5.0
Housewife	25	62.5
Self-employed	2	5.0
Government employees	4	10.0
Private employees	5	12.5
Farmer	2	5.0
TOTAL	40	100

Frequency distribution data: The majority of respondents were female, 34 respondents (85.0%), the majority were elderly (>46 years), 31 respondents (77.5), and the majority occupation was as a housewife, 25 respondents (62.5%).

b. Univariate Analysis

Table 2. Pretest and Posttest Descriptive Statistics Results

Tahap Pengukuran	Mean kolestrol	Keterangan Selisih
Pretest	2.40	0.62
Posttest	1.78	

The research results in the table are the pretest and posttest scores obtained from respondents who consumed the decoction of the ciplukan plant, obtaining an average score in the pretest of 2.40, higher than the posttest, namely 1.78 with a difference of 0.62. So it can be concluded that there is a decrease in cholesterol levels after consuming the decoction of the ciplukan plant.

c. Normality test

Table 3. Normality Test Results for Research Variables

Group	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistics	Df	Sig.	Statistics	df	Sig.
Pretest	,343	40	,000	,704	40	,000
Posttest	,317	40	,000	,768	40	,000

Based on the results of the normality test, it is said to be normally distributed if the significance value is > 0.05. If the significance value is <0.05 then it is said that the data is not normally distributed. The normality test results in the table show that the Sig. The Kolmogorov-Smirnov test on the pretest results is 0.000 and 0.000. So the significance value for decoction of ciplukan plants is smaller than 0.05, which means that the distribution of pretest and posttest data is not normally distributed.

3.2 Bivariate Analysis

a. Hypothesis test

Table 5. Wilcoxon Test Results Before and After Giving Ciplukan Plant Decoction to Cholesterol Sufferers

	N	Mean	Std. Deviation	Minimum	Maximum	P Value
Pretest	40	2.40	,545	1	3	
Posttest	40	1.78	,620	1	3	,000

Based on the table of Willcoxon test results in the pre-test giving Ciplukan Plant Decoction was carried out to 40 respondents and obtained a mean of 2.40 and std, deviation 0.545 with a minimum of 1 and a maximum of 3 and obtained a p-value of 0.00 < α 0.05, then in the posttest Ciplukan Plant Decoction carried out on 40 respondents and obtained a mean of 1.78 and a std deviation of 0.620, with a minimum of 1 and a maximum of 3, so we get a p-value of 0.000 < α 0.05, so Ho is rejected and Ha is accepted, which means that there is a significant influence between the Effect of Ciplukan Plant Decoction on Cholesterol Incidence In Rundeng Village, Johan Pahlawan District, West Aceh Regency.

3.3 Discussions

The research results showed that there was an effect of decoction of Ciplukan plants on reducing cholesterol levels in Rundeng Village with Wilcoxon test results of 0.000 < α 0.05. Cholesterol is a complex fat compound, 80% of which is produced from inside the body (liver) and the remaining 20% from outside the body (food substances) for various functions in the body, including forming cell walls. Cholesterol does not dissolve in the blood, so in order for it to be sent throughout the body it needs to be packaged with protein into particles called lipoproteins or cholesterol carriers, in the blood (Utama, 2021).

*Physalis angulata L*or known as ciplukan, currently it is still rarely used, ciplukan contains flavonoids, phenols, tanim, saponins, steroids, triterprenoids, alkaloids and free withanolides which are beneficial for health. Ciplukan (physalis angulata L) has extraordinary properties for lowering cholesterol due to the content contained in ciplukan (physalis agulata L) (Seyla Dk Rindiani, 2023). Ciplukan (physalis angulata L) contains many secondary metabolite compounds, namely flavonoids and phenolics such as physalin, physagulin, beta-carotene, myricetin, oleanolic acid and quercetin which have excellent effectiveness in reducing plasma lipid levels in hypercholesterolemia sufferers. In particular, Myricetin and Quercetin are chemical compounds in the flavonoid group, these two compounds have activity as antioxidants, antibacterial, antithrombotic, anti-inflammatory, anti-arterosclerotic and cardioprotective (Afriyeni & Surya, 2019).

A study from (Rafika et al., 2022), revealed that administration of ciplukan decoction can improve the lipid profile in plasma, so that the results of clinical trials show a reduction in plasma cholesterol levels. Based on research results from (Afriyeni & Surya, 2019), it was revealed that the stems and fruit of the ciplukan plant (Physalis angulata L) have effectiveness as antihypercholesterolemia but with quite different activities, the stems have a hypolipidemic effect, namely they can reduce total cholesterol, triglyceride and LDL levels but not increases HDL levels, while fruit is very good in increasing blood plasma HDL levels. The results of this research are also in line with (Fadhli et al., 2023), who say that theCiplukan plant is safe for consumption and can reduce cholesterol. This is because the Ciplukan plant has biological and pharmacological activities such as many secondary metabolite compounds that have been isolated from the roots, leaves and stems. and flowers such as physalin, withanolides and flavonoid glycosides.

The researcher's assumption in this study was that as long as the respondent consumed ciplukan (physalis Angulata L) decoction, the respondent said that after drinking ciplukan (physalis Angulata L) decoction for one month three times a week in the morning the respondent's body felt light and when doing activities felt comfortable without If you have to take cholesterol medication, researchers advised respondents to drink the decoction more often, namely once a day in the morning, because ciplukan contains ingredients that can increase HDL (High Dencity Lipoprotein) levels and reduce LDL (Low Dencity Lipoprotein) levels in the body. To find ciplukan (Physalis Angulata

L) easily, just look for places such as rice fields and places that have been burned. And researchers advised respondents to always check their cholesterol at least once a month.

4. Conclusion

Drinking ciplukan (physalis Angulata L) decoction is effective for lowering cholesterol levels due to its rich content of secondary metabolite compounds, namely flavonoids and phenolics such as physalin, physagulin, beta-carotene, myricetin, oleanolic acid and quercetin which have very good effectiveness. It is highly recommended that cholesterol sufferers can be more optimal and drink a decoction of ciplukan (physalis Angulata L) to get even better results. Furthermore, it can be used as reference material, developing knowledge about the effectiveness of decoction of the Ciplukan plant (Physalis Angulata L) as an anti-hypercholesterolemia agent and a source of information for further better research.

Submissions

Please submit the manuscript to the Open Journal System at https://iocscience.org/ejournal/index.php/JMN/ and should there be any questions, please mail your question by email to jmn.editor@iocscience.org . The communication between the authors and the editors will be done through the Open Journal System.

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