

THE EFFECT OF THE COMBINATION OF BASIL LEAF (CIMUM BASILICUM) AND BAY LEAF (SYZYGIUM POLYANTHUM) BOILED WATER ON THE LEVEL OF CLANSIA URIC ACID IN RUMPA VILLAGE

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ABSTRACT

Gout is the result of protein metabolism from foods that contain purines such as several types of food sourced from animals and have a high content of purines including, jeroun (liver, spleen, tripe), livestock (beef, horse meat and goat meat), processed (comet, sardines, cheese) increase uric acid levels, if there is an increase in uric acid levels and are marked by sciatica in the joints, Aches, pains, redness and swelling are known as gout. The prevalence of gout in Indonesia occurs under the age of 34 years by 32% and over 34 years by 68%. People with gout if not treated quickly will worsen. The objective was to determine the effect of the combination of boiled water of basil leaves (*Cimum basilicum*) and bay leaves (*Syzygium polysnthum*) on the uric acid levels of the elderly in Rumpa Village. The method used was the quasi-experimental time approach method (pretest-post test), a sample of 10 people. Results The researcher obtained a statistical test using the Paired Sample t test because after the normality test of the data obtained was normally distributed with the pre-test, a value of $p0.880$ ($p0.05$) was obtained. For the post test, a value of $p0.614$ ($p0.05$) was obtained, so it can be concluded that the data is normally distributed. This means that there is an effect of giving a combination of basil leaf boiled water (*Ocimum Basilicum*) and bay leaf boiled water (*Syzygium Polyanthum*) on uric acid levels in the elderly

Keywords: bay leaf and basil leaf; elderly; gout

INTRODUCTION

Gout is the result of protein metabolism from foods that contain purines such as several types of food sourced from animals and have a high content of purines including, jeroun (liver, spleen, tripe), livestock (beef, horse meat and goat meat), processed (comet, sardines, cheese) increase uric acid levels, if there is an increase in uric acid levels and is marked by sciatica in the joints, Aches, pains, redness and swelling are known as gout. Gout has the potential to cause infection when there is a rupture of the tofus, kidney stones, hypertension and other heart diseases. The level of uric acid in serum and blood depends on age and gender. The cause of gout appears due to excessive levels of uric acid in the blood where there are more uric acid proteins in the body than they are excreted. This disease is a chronic non-communicable disease caused by an unhealthy lifestyle and diet consuming foods high in purines, such as animal protein sources Chicken, codfish, mackerel, pomfret, milkfish, shellfish, shrimp (Hasibuan and Simamora 2020). As a result, it causes a buildup of uric acid in the body's organs, making the joints ache, ache, and inflame. (Nurhamidah and Nofiani 2015). Increasing uric acid levels, if there is an increase and marked by sciatica in the joints, pain, pain, redness and swelling this condition is known as gout has the potential to cause infection when tofus rupture, kidney stones, hypertension and other heart diseases occur. (Karuniawati 2018)

The prevalence of gout according to (WHO) in 2020 reached 80 million people, while the number of elderly people in 2020 in Indonesia reached 28.8 million people or 36 percent of the total

population of 13.6/1000 men and 6.4/1000 women. The increase in the incidence of gout does not only occur in developed countries. However, an increase also occurred in developing countries, one of which was in Indonesia (Rahayu et al. 2021). In 2017 Indonesia was the 4th largest country in the world whose population suffers from gout. The World Health Organization survey also showed that as many as 81% of the population studied suffered from gout, and some gout disease occurred in 35% of peria under the age of 34 (Rahayu et al. 2021). Continuous increase in uric acid levels can cause gout arthritis. gout arthritis is one of those caused by the deposition of monosodium urate crystals (MSU) in a tissue causing inflammation. (Rahayu et al. 2021).

In Indonesia, gout is ranked 2nd in osteoarthritis, in Indonesia it is estimated that gout occurs in 840 people per 100,000 people (Ferbrianti, Mir a 2018). Basic Health Research Data (2013) The prevalence of Athritis Gout disease in Indonesia based on diagnosis or symptoms is 24.7%. The highest prevalence is in East Nusa Tenggara 33.1%, Athitis Gout disease 21.8% (RISKESDAS 2013). Based on the results of Basic Health Research in Polewali Mandar district, data on joint/rheumatic diseases was obtained as much as 16.76% (Risksedas, 2013). According to data obtained from the Polewali Mandar Health Office in the last five months, the majority of the elderly experienced joint disease/rheumatism in 2022 as many as 530 people. The increase in gout sufferers based on the data above is even more significant if not treated quickly and correctly, then in the following year the number of gout sufferers will increase. Complaints felt in patients with gout arthritis are pain at night or in the morning when waking up, difficult to move and swollen joints, difficulty walking and difficulty in carrying out daily activities caused by inflammatory reactions due to the presence of uric acid crystal deposits in the joint cavity. If left untreated, it will cause joint paralysis, deformity, and cause further complications as well as kidney and heart disorders and even death (Rosaline and Anggraeni 2019).

Gout most often affects an elderly person if he is more than 60 years old. Causes of the disease goat arthritis In the elderly, it comes from inside the body (endogenous), while in adults it comes from outside the body (exogenous). This is because in the elderly there has been a decrease in the function of various organs of the body as a result of cell damage due to the aging process. So that hormonal products, enzymes and substances necessary for immunity are reduced. Thus, the elderly will be more susceptible to infections compared to adults (Zuhriyah and Sari 2022). To overcome gout, pharmacological and non-pharmacological treatment is carried out. Pharmacological treatment is at risk of causing cancer, kidney and liver damage. While the use of traditional medicine does not have dangerous side effects compared to chemical drugs so it is very necessary to overcome gout using non-pharmacological treatment in overcoming gout by using alternative and complementary therapies there is a treatment that can be cured, namely, with this therapeutic diet therapy for the treatment of gout by regulating the intake of foods consumed that contain low purines such as wheat bread, brown rice, young corn. And this herbal therapy uses herbal plants in the form of natural plants such as basil leaves and bay leaves which are widely found in the main community in Polewali Mandar so that people use many non-pharmacological treatments in overcoming gout, namely by using medicinal plants, the influence of a combination of basil leaf decoction water (*Cimum basilicum*) and bay leaf decoction water (*Syzygium polysnthum*), the results of chemical tests show that extra basil leaves have active compounds of flophonoids, alkaloids, saponins, and tannins.

Some researchers have also mentioned that uric acid levels can be lowered by the presence of secondary metabolism in the form of alveolids and alkaloids in plants by inhibiting xanthine oxidase activity so that the formation of uric acid is inhibited (trade medicine journal). And one of the plants that is thought to be efficacious in overcoming rheumatic gout pain by lowering uric acid levels in the blood because it contains essential compounds, eugenols, alphonoids, tannins, saponins, and thymine. Salam is also used as a traditional herb mixture. Salam has properties in overcoming various diseases and can be used to overcome rheumatic diseases, coughs, colds, stomach disorders, chest and abdominal pain, as well as tooth decay, and high uric acid. Bay leaves are thought to be able to reduce uric acid levels in the blood because they contain essential oil compounds, eugenols, flaphonoids, tannins, saponins and tinyme against the decrease in uric acid in rats *Rattus norvegicus* (Arjani 2018). Based on the results of a study conducted by Mutoharoh (2018) testing extra basil leaf decoction on a decrease in uric acid in the blood of white rats induced by caffeine directed a decrease in uric acid levels in rats where the largest decrease in uric acid levels in the blood was at the dose (200 mg/BB) and from the results of other studies it has been proven that people with hyperuricemia, after 7 days were given basil leaf decoction 2 times a day, The average uric acid level decreased.

Apart from basil leaf decoction extract to reduce uric acid levels, bay leaf extract can also reduce uric acid levels. In accordance with the results of the research conducted (Ardhiyanti 2013), testing the efficacy contained in bay leaves has compounds such as essential oils, tannins, and flavonoids. Essential oils with citrate oil and eugenol content that are anti-bacterial. Tannins have the ability to reduce and play an important role in absorbing and neutralizing free radicals and decomposition of peroxides. Flavonoids can inhibit the enzyme xantinioxidase, which functions to inhibit the formation of uric acid (Widiyono 2020). Based on a preliminary study in the working area of the Mapilli health center that has been researched, there are 10 elderly people who have been interviewed, 8 people always routinely go to the health center to take rheumatic medicine and consume it, the pain heals, it doesn't take long for it to recur, while 2 people only occasionally go to the health center and drink more herbal herbs including boiled water, basil leaves and bay leaves. The lack of utilization in Rumpa Village so that researchers are interested in conducting research "The effect of the combination of basil leaf (*Cimum basilicum*) and bay leaf (*Syzygium polysnthum*) boiled water on the level of uric acid of the elderly in Rumpa Village.

METHOD

The method used is the quasi-experimental time approach method (pretest-pos test), which is data collection that is carried out in a non-random manner, meaning that the division of subjects in groups is not carried out randomly, so that the control of the interfering variable is very weak. (Saryono, 2020). This type of research is a quasi-experiment with a pre-post test design. This research is located in Rumpa Village, the working area of the Mapilli Health Center, Polewali Mandar Regency. The research was carried out on September 18 – 24, 2023. The population in this study is all elderly people in Rumpa Village. In the Consecutive Sample technique in this study, there were 10 elderly respondents who suffered from gout. Data collection was carried out using observation sheets, explaining research procedures about basil leaves and bay leaves and checking uric acid levels of the elderly before becoming respondents using GCU. In this study, data processing and analysis are after the data is collected and then bladder using a test Wilcoxon that use computer with SPSS program software with a significance level of $p= 0.00$ ($p.>0.05$) means that there is a relationship between two significant variables, then H_0 is accepted, and if the value

of Asymp.Sig (2-tailed)<0.05 so H_a is accepted and H_0 is rejected. Researchers want to compare data before and after.

RESULTS AND DISCUSSION

Table 1.
 Overview of Respondent Distribution by Age

Education	f	%
60-70 Years	5	50
70-80 Years	4	40
>80 Years	1	10

Table 1, it shows that out of 10 respondents, the elderly aged 60-70 years are 5 people (50%), the elderly are 70-80 years old as many as 4 people (40%), and the elderly over 80 years old are 1 person (10%).

Table 2.
 Overview of Respondent Distribution by Gender

Gender	f	%
Law Law	4	40
Woman	6	60

Table 2, it shows that out of 10 respondents, the gender of the male elderly is 4 people (40%), and the gender of the female elderly is 6 people (60%).

Table 3.
 Overview of Respondent Distribution by Education

Education	f	%
SMP	1	10
SD	8	80
No School	1	10

Table 3, it shows that out of 10 respondents, the number of elderly people with a junior high school education level is 1 person (10%), the number of elderly people with an elementary education level is 8 people (80%), and the number of elderly people who are not in school is 1 person (10%).

Table 4.
 Overview of Respondent Distribution by Job

Education	f	%
Farmer	3	30
IRT	6	60
No School	1	10

Table 4, it shows that out of 10 respondents, the number of elderly people working as farmers is 3 people (30%), the number of elderly people working as IRT is 6 people (60%) and the number of elderly people who are not working is 1 person (10%).

Table 5.

Uric acid levels of the elderly before being given a combination of basil leaf boiled water (*Ocimum basilicum*) and bay leaf boiled water (*Syzygium polyanthum*)

Category	Mean	N	Min	Max
Kader Acham Orat	8,0	10	7,3	8,2

Table 5, it was shown that the average amount of uric acid levels of respondents before consuming the combination of basil leaf boiled water (*Ocimum basilicum*) and bay leaf boiled water (*Syzygium polyanthum*) was 8.2 with the lowest uric acid level being 7.3.

Table 6.

Uric acid levels of the elderly after being given a combination of basil leaf decoction water (*Ocimum basilicum*) and bay leaf decoction water (*Syzygium polyanthum*)

Category	Mean	N	Min	Max
Kader Acham Orat	5,7	10	3,6	5,7

Based on the data obtained from table 6, it shows that the average uric acid level of the elderly post 5.7 after consuming a combination of basil leaf boiled water (*Ocimum basilicum*) and bay leaf boiled water (*Syzygium polyanthum*) uric acid level decreased by 3.6.

Based on the univariate data obtained and then an analysis was carried out on the effect of the combination of administration of basil leaf decoction water (*Ocimum basilicum*) and bay leaf decoction water (*Syzygium polyanthum*) on uric acid levels in the elderly (60-80 years old).

Table 7.

Data Normality Test Results

	Shapiro-Wilk			Conclusion
	Statistic	Df	p-value	
AU Levels Before Giving Basil and Bay Leaf Decoction Water	0,976	10	0,938	Usual
Uric acid levels after giving basil and bay leaf decoction water	0,935	10	0,502	Usual

Table 7, the results of the *Shapiro wilk* normality test were pre-test with a value of $p=0.938$ ($p>0.05$). For the post-test, the value of $p=0.502$ ($p>0.05$), and the difference from before and after the combination of boiled water of basil leaves (*Ocimum Basilicum*) and bay leaves (*Syzygium Polyanthum*) was $p=0$, ($p>0.05$), it can be concluded that the data is normally distributed, the statistical test used is the *Paired Sample t test*.

Table 8.

Paired Sample t Test Results

Kader Acham Orat	Average	Difference	p-value
Pre-Test	8,0	3,2	0.000
Post-Test	4,8		

Based on the results of table 8, it was shown that the average uric acid level of the elderly before the combination of basil leaf (*Ocimum Basilicum*) and bay leaf (*Syzygium Polyanthum*) was 8.0 and the average uric acid level after being given a combination of basil leaf (*Ocimum Basilicum*) and bay leaf (*Syzygium Polyanthum*) boiled water was 4.8 with a difference of 3.2.

Analysis of Uric Acid Levels of the Elderly Before the administration of a combination of basil leaf (*Ocimum basilicum*) and bay leaf (*Syzygium Polyanthum*) boiled water

Based on table 5, the average value of pre-test uric acid levels of 8.2 mg/dl is classified as having high uric acid levels, and the lowest uric acid levels before being given a combination of basil leaf (*Ocimum basilicum*) and bay leaf (*Syzygium Polyanthum*) 7.3 mg/dl, it can be concluded that all respondents have abnormal uric acid levels as many as 10 elderly people (100%) According to researchers, the increase in uric acid levels in the elderly is due to several factors including age, gender, education, and diet. In addition, the elderly have a history of normal uric acid levels that will recur if they are not properly controlled. This is in accordance with the opinion (Suiraka 20120) that the factors that cause gout include heredity, diet, and inhibition of gout elimination. Uric acid is an acid in the form of crystals that comes from the end result of the purine metabolism process. These purines are part of nucleic acids contained in the nucleus of body cells (Lehninger, 2019). Uric acid is a substance that is the final product of purine metabolism in the body that is excreted through urine. An increase in uric acid levels in the blood that exceed the normal limit will result in hyperuricemia which if prolonged will cause gout.

Gout is also one of several diseases that are very dangerous, because it not only interferes with health but can also cause physical disabilities such as pain, swelling, and heat in the joint area. Kidneys that do not have the power to remove excess uric acid will be one of the causes of the formation of monosodium uric crystals so that uric acid levels will increase (Adriyan, Iksir, Hamdani, & Yanti, 2020). According to Fauzi (2018), gout can occur in people over 40 years old, which is around 60 years old. Uric acid levels increase in adult men ≥ 30 years old and women after menopause or ≥ 50 years old which is included in the productive age. And based on the National Health and Nutrition Survey (NHANES) (Hambatara, 2018) shows an increase in the prevalence of gout based on age, highest at the age of (70-79 years) (9.3%), age (60-69 years) (8%), age (50-59 years) (3.7%), and age (40-49 years) (3.3%). According to (Husnaniyah, 2019) a person's level of education affects a person's knowledge. Education is an effort to develop a person's personality and skills, education influences a person's behavior, lifestyle in overcoming their health problems. The higher a person's education, the higher the insight and knowledge, but people with low education do not necessarily have low knowledge (Arlinda et al., 2021).

Research conducted by nelly found that the non-working samples had uric acid levels 81.3% higher compared to the working samples. The low activity level of respondents causes energy expenditure to be lower, resulting in fat accumulation in the body, which can affect uric acid metabolism in the blood (Arlinda et al., 2021). According to research conducted by (Dalimarta., 2019) stated that the level of uric acid in the blood depends on gender, before puberty the level of uric acid in men is 3.5 mg/dl after puberty increases gradually to 5.2 mg/dl while in women the level of uric acid remains low only at the age of menopause it is biased to exceed 4.7 mg/dl.

Analysis of Uric Acid Levels of the Elderly After Giving a Combination of Basil Leaf (*Ocimum Basilicum*) and Bay Leaf (*Syzygium Polyanthum*) Boiled Water

Table 6 obtained an average value of post test uric acid content of 5.7 mg/dl and after being given a combination of boiled water of basil leaves (*Ocimum basilicum*) and bay leaves (*Syzygium Polyanthum*) of 3.6 mg/dl and the highest uric acid level of 10 mg/dl. The results of this study showed that after a combination of basil leaf (*Ocimum basilicum*) and bay leaf (*Syzygium Polyanthum*) boiled water, it was known that all respondents experienced a decrease in uric acid

levels. According to Wijaya Kusuma (2019) in Herliana 2019 said that the main cause of increased uric acid levels in the blood due to impaired uric acid metabolism is caused by consuming foods that contain high purines, therefore patients are recommended to eat a purine diet to reduce the formation of uric acid.

This is in accordance with the opinion of Mutoharoh (2018) that the use of basil leaf boiled water (*Ocimum Basilicum*) can excrete uric acid, in addition to being able to relieve the pain caused. According to Anggun, Ismanto, and Masi 2016) basil (*Ocimum Basilicum*) contains Flavonoid compounds that have the potential to inhibit enzyme activity xanthine oksidase so that it can inhibit and form aam veins in the body and luteolin is a type of flavonoid that has an inhibitory power to deliver all types of flavonoids, and also according to (Nirmala 2019) bay leaves (*Syzygium Polyanthum*) It also contains flavonoid compounds, essential oils that are anti-icidal which can inhibit the enzyme xanthine oxidase and inhibit and reduce the formation of uric acid. Recognizing the many negative impacts of the use of chemical drugs, non-drug treatment should be more effective. In addition, high doses of drugs and types of drugs that are difficult to use can cause the elderly to stop taking drugs and have an impact on the treatment carried out to be ineffective. Therefore, it is necessary to carry out alternative treatment, namely the administration of a combination of basil leaf boiled water (*Ocimum Basilicum*) and bay leaf (*Syzygium Polyanthum*).

Analysis of the effect of a combination of basil leaf (*Ocimum Basilicum*) and bay leaf (*Syzygium Polyanthum*) boiled water on the uric acid level of the elderly

Table 5 showed that the uric acid level before the intervention had an average of 8.0 and table 6 showed a decrease after the intervention to 5.7. 10 respondents experienced a decrease after consuming a combination of basil leaf (*Ocimum basilicum*) and bay leaf (*Syzygium Polyanthum*) boiled water on the uric acid level of the elderly. This study aims to determine the effect of the combination of basil leaf (*Ocimum Basilicum*) and bay leaf (*Syzygium Polyanthum*) boiled water on the blood uric acid levels of the elderly (age 60-80 years) in the working area of the Mapilli Health Center, Mapilli District, Polewali Mandar Regency before and after the application of the combination of basil leaf (*Ocimum Basilicum*) and bay leaf (*Syzygium Polyanthum*) boiled waterto the uric acid level of the elderly has changed. The researcher used the Paired Sample t test because after the normality test of the data obtained was normally distributed with the pre-test, the value of $p=0.880$ ($p>0.05$) was obtained. For the post test, the value of $p=0.614$ ($p>0.05$) can be concluded that the data is normally distributed. The normality test used was the Shapiro wilk test because the sample used was 10 people.

The results of the study (Darussalam & Rukmi, 2016) on the effect of the combination of basil leaf boiled water (*Ocimum Basilicum*) and bay leaf (*Syzygium Polyanthum*) (age 60-80 years) in the working area of the Mapilli Health Center, the results of the statistical test were obtained using the Paired sample t test with the help of SPSS, the result between significant (2-tailed) was 0.000 which means $p=(>0.05)$, this shows that H_a is accepted and H_0 is rejected by Thus, there is an effect of the combination of boiled water of basil leaves (*Ocimum Basilicum*) and bay leaves (*Syzygium Polyanthum*) on the uric acid levels of the elderly (age 60-80 years) in the working area of the Mapilli Health Center, Mapilli District, Polewali Mandar Regency. The results of the research conducted by (Alvita & Fidora., 2018) who said to 15 respondents after giving boiled water daun salam (*Syzygium Polyanthum* Given 200 C, drunk 2 times a day in the morning and evening for 7 days, from the average before the administration of bay leaf decoction water 8.8 mg/dl and after

the administration of bay leaf decoction water decreased to 7.5 mg/dl indicating the static results of the test t test p-value $0.001 < 0.05$ there was a decrease in uric acid levels by 1.3 mg/dl accompanied by purine diet recommendations. The results of the study were based on respondent-reported scales and further oncative measurements. On the other hand, researchers conducted by (Ismanto & Masi 2016) pointed out that boiled water from basil leaves was able to reduce uric acid levels in people with hyperuricemia, boiled water from basil leaves for 7 days.

The results of other studies also stated that consuming Basil leaf decoction water combination (Ocimum Basilicum) and bay leaf (Syzygium Polyanthum) during the premenopause period which was carried out for 7 days where the respondents Consuming a combination of basil leaf boiled water (Ocimum Basilicum) and bay leaf (Syzygium Polyanthum) 2 times a day. (Octivia et al., 2020) The results of the study also showed a positive correlation between the combination of basil leaf (Ocimum Basilicum) and bay leaf (Syzygium Polyanthum) boiled water on respondents who experienced gout. This means that the elderly who consume a combination of basil leaf (Ocimum Basilicum) and bay leaf (Syzygium Polyanthum) boiled water have decreased. The content of these flavonoids is able to inhibit the formation of uric acid, besides that it is also efficacious as a diuretic that is able to excrete uric acid through urine (Andriani & Chaidir 2016). In a study conducted by researchers with the title The effect of a combination of basil leaf (Ocimum basilicum) and bay leaf (Syzygium Polyanthum) boiled water on the acid level of the elderly (age 60-80 years) in the working area of the Mapilli health center. Explaining that the combination of basil leaf decoction water (Ocimum basilicum) and bay leaf (Syzygium Polyanthum) has a large content, namely flavonoids, alkaloids, saponins, tannins and triterpenoids that are able to inhibit the action of hypoxhatin and xanthine enzymes in the body which causes inhibition in the formation of uric acid. So it can be concluded that there is an effect of the combination of Basil Leaf (Ocimum basilicum) and Bay Leaf (Syzygium Polyanthum) Boiled Water on the Uric Acid Level of the Elderly (60-80 years old) in the working area of the Mapilli Health Center.

According to the observation of the researcher, the effect of the Combination of Basil Leaf (Ocimum basilicum) and Bay Leaf (Syzygium Polyanthum) Boiled Water on Elderly Uric Acid Levels is the right intervention to be given to the elderly who experience the problem of high uric acid levels but also has many benefits including as anti-inflammatory, heart health, anti-bacterial, lowering blood pressure, and good for diabetics, increase the immune system, and can prevent uric acid levels.

CONCLUSION

Based on the results of research that has been carried out on the effect of the combination of basil leaf boiled water (Ocimum Basilicum) and bay leaf boiled water (Syzygium Polyanthum) on uric acid levels in the elderly, the following conclusions can be drawn: There was a difference in uric acid levels before the combination of basil leaf (Ocimum Basilicum) and bay leaf (Syzygium Polyanthum) boiled water was given to the elderly ≥ 60 years old in Rumpa Village, Polewali Mandar Regency in 2023. There was a difference in uric acid levels after the administration of a combination of basil leaf (Ocimum Basilicum) and bay leaf (Syzygium Polyanthum) decoction water to the elderly ≥ 60 years old in Rumpa Village, Polewali Mandar Regency in 2023. There is an effect of a combination of basil leaf decoction water (Ocimum basilicum) and bay leaf decoction water (Syzygium Polyanthum) on uric acid levels in the elderly ≥ 60 years old in Rumpa Village.

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