



OVERVIEW OF GIVING BOILED SOURSOP LEAF WATER TO REDUCE GOUT ARTHRITIS LEVELS IN ELDERLY PATIENTS IN KARANGJAMBU VILLAGE, KARANGJAMBU DISTRICT, PURBALINGGA REGENCY

GAMBARAN PEMBERIAN AIR REBUSAN DAUN SIRSAK TERHADAP PENURUNAN KADAR ASAM URAT PADA LANSIA PENDERITA *GOUT ARTHRITIS* DI WILAYAH DESA KARANGJAMBU KECAMATAN KARANGJAMBU KABUPATEN PURBALINGGA

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Abstract

Background: Gout arthritis is a degenerative disease commonly experienced by the elderly due to elevated uric acid levels in the blood. One safe non-pharmacological treatment alternative is the use of herbal remedies such as soursop leaves (*Annona muricata* L), which contain active compounds like flavonoids and alkaloids that may reduce uric acid levels. **Objective:** To describe the effect of boiled soursop leaf water on reducing uric acid levels in elderly patients with gout arthritis in Karangjambu Village, Karangjambu Subdistrict, Purbalingga Regency. **Method:** This study employed a case study method. Subjects were given an intervention of 200 ml of boiled soursop leaf water daily (100 ml in the morning and 100 ml in the evening) for seven consecutive days. Uric acid levels were measured before and after the intervention. **Results:** After seven days of soursop leaf water administration, uric acid levels decreased from an average of 8.7–9.0 mg/dl to 5.5–5.8 mg/dl. This suggests that the active compounds in soursop leaves are effective in inhibiting xanthine oxidase and promoting uric acid excretion through urine. **Conclusion:** Boiled soursop leaf water is effective in lowering uric acid levels in elderly patients with gout arthritis and can serve as a safe and practical complementary non-pharmacological therapy within the community.

Keywords: Gout arthritis, elderly, soursop leaves, uric acid levels.



Abstrak

Latar Belakang: *Gout arthritis* merupakan penyakit degeneratif yang umum terjadi pada lansia akibat peningkatan kadar asam urat dalam darah. Salah satu alternatif pengobatan non-farmakologis yang aman adalah penggunaan tanaman herbal, seperti daun sirsak (*Annona muricata L.*), yang diketahui mengandung senyawa aktif flavonoid dan alkaloid yang berpotensi menurunkan kadar asam urat. Tujuan: Mengetahui gambaran pengaruh pemberian air rebusan daun sirsak terhadap penurunan kadar asam urat pada lansia penderita *gout arthritis* di Desa Karangjambu, Kecamatan Karangjambu, Kabupaten Purbalingga. Metode: Studi kasus ini menggunakan metode studi kasus. Subjek diberikan intervensi berupa air rebusan daun sirsak sebanyak 200 ml per hari (100 ml pagi dan 100 ml sore) selama tujuh hari berturut-turut. Kadar asam urat diukur sebelum dan sesudah pemberian intervensi. Hasil: Setelah tujuh hari pemberian rebusan daun sirsak, terjadi penurunan kadar asam urat dari rata-rata 8,7–9,0 mg/dl menjadi 5,5–5,8 mg/dl. Penurunan ini menunjukkan efektivitas senyawa aktif dalam daun sirsak dalam membantu menghambat enzim *xanthine oxidase* serta meningkatkan pengeluaran asam urat melalui urin. Kesimpulan: Air rebusan daun sirsak efektif dalam menurunkan kadar asam urat pada lansia penderita *gout arthritis* dan dapat dijadikan sebagai terapi komplementer non-farmakologis yang aman dan mudah diterapkan di masyarakat.

Kata Kunci: *Gout arthritis*, lansia, daun sirsak, kadar asam urat.

1. INTRODUCTION

All humans go through stages of growth and development, including old age. Growth and development begin in early childhood and continue through adolescence, adulthood, and old age, so they do not occur suddenly. Old age is the later stage of life characterized by a decline in the body's capacity to adapt to the environment. Individuals aged 60 years or older are considered elderly and typically experience a decline in psychological, biological, economic, and social functions (Wulandari et al., 2023).

Humans experience the aging process as they grow older. Aging is a temporary, universal, essential, and progressive transformation process. In this situation, there may be a loss of adaptation to the environment and a lower chance of survival. The body becomes more vulnerable to disease recurrence as immunity and resistance gradually decrease, which interferes with the normal function of organs. Weight loss, including loss of bone and muscle mass, and an increase in fat mass are some changes caused by aging and physiological changes that affect the elderly. Degenerative risk diseases such as can be caused by increased body fat (Shelemo, 2023). Due to the degenerative processes affecting metabolism, gout arthritis prevalence tends to increase in older adults. High levels in the metabolic system trigger gout arthritis (Febriyanti et al., 2020).

The biochemical condition described as gout arthritis causes joint discomfort, often in the wrists, ankles, and midfoot. The buildup of gout crystals in the joints is the main cause of uric acid pain. This accumulation is often due to decreased uric acid excretion by the kidneys, purine production disorders, and poor uric acid metabolism. Purine-rich foods and decreased glomerular filtration are known triggers for gout crystal production (Dungga, 2022).

The (WHO) states that the number of people with increases worldwide each year. The incidence of gout arthritis is around 1% to 4% in the general population, but in Western countries, men are more likely to have gout than women, at about 3% to 6%. In some countries, prevalence can rise to 10% in men and 6% in women over 80 years old. The annual incidence is 2.68 per 1,000 people. Gout arthritis has been steadily increasing globally due to poor eating



habits, lack of exercise, obesity, and metabolic syndrome (Arsa, 2021). In 2019, WHO reported that had the highest global prevalence of gout arthritis at 29%, followed by at 3.5% and the at 2.5% (Dungga, 2022). According to an epidemiological survey by the , from 4,683 samples, the prevalence of gout arthritis was 11.75% in women and 24.3% in men, and the number of cases continues to rise annually (Jateng Dinkes, 2024).

Based on data from (May 3, 2025), there were 494 elderly individuals, with 93 suffering from gout arthritis, mostly aged between 60 and 73 years. These elderly individuals use various methods to relieve joint pain and lower uric acid levels, such as applying topical balms, using capsicum patches, or taking medications. Most reported pain in their feet and hands (, 2025). Gout arthritis is caused by abnormal purine metabolism (hyperuricemia). Risk factors include consuming purine-rich foods and substances, especially with aging. Decreased uric acid excretion in this case is usually due to increased uric acid production, impaired kidney function, or both. Joint discomfort at night or in the morning is a common complaint among gout arthritis patients (Wulandari et al., 2023). Normal uric acid levels in adult men range from 3.4 to 7.0 mg/dL and in adult women from 2.5 to 5.7 mg/dL. Underlying factors include genetics and hormones influenced by high purine intake. Research shows that uric acid levels in women over 60 range from 6.1 to 9.3 mg/dL (29.7%–72%), and in men over 60 from 6.9 to 9.3 mg/dL (14.3%–79%) (Agustin et al., 2024).

Typical symptoms of gout arthritis include joint pain causing inflammation, swelling, burning, and mild to severe pain, potentially leading to joint damage and disability if untreated (Nuraeni et al., 2023). Gout arthritis must be treated promptly to prevent recurrence and complications such as chronic gout arthritis, enlarged or ruptured crystals, urinary stones, or kidney failure (Febriyanti et al., 2020). Negative attitudes are often due to boredom or ignorance about dietary restrictions, as many still consume high-purine foods like organ meats, sardines, broths, nuts, crackers, and fermented foods. Gout arthritis patients must follow a low-purine diet to stabilize uric acid levels and prevent flare-ups (Nurinah, 2021).

Managing high uric acid levels in the elderly requires appropriate approaches, both pharmacological and non-pharmacological. Continuous use of anti-inflammatory drugs can cause dependency and organ damage in the elderly, so safer alternatives are needed (Yanti, 2019). One non-pharmacological approach is complementary therapy using () herbal remedies. Soursop leaves contain acetogenins and phenolic compounds rich in antioxidants, which slow down the activity of —an enzyme involved in converting hypoxanthine into xanthine. Soursop leaves also contain nutrients like fructose, calcium, iron, vitamins A and B, phosphorus, and alkaloids (Nursoleha et al., 2019; Retnaningsih & Amalia, 2023). Boiled soursop leaves are rich in alkaloids and flavonoids, which help lower uric acid levels. Flavonoids are powerful antioxidants that can prevent the formation of gout crystals in the blood (Retnaningsih & Amalia, 2023).

Based on this phenomenon, the researcher is interested in conducting a study titled: “Overview of Giving Boiled Soursop Leaf Water to Reduce Uric Acid Levels in Elderly Patients with Gout Arthritis in Karangjambu Village, Karangjambu District, Purbalingga Regency.”

2. RESEARCH METHOD

This research was conducted using a quasi-experimental design with a pre-test and post-test control group design. This means that there were two groups of elderly participants diagnosed with Gout arthritis: an experimental group that received treatment by consuming



boiled Soursop leaf water, and a control group that did not receive the treatment. Both groups were given a pre-test to measure their initial uric acid levels before the treatment and a post-test after the treatment to determine whether the administration of boiled soursop leaf water could reduce uric acid levels in elderly gout arthritis patients. The design of this study followed the quasi-experimental method proposed by Sugiyono (2011), which allows for the comparison between two groups to test the effect of a treatment under controlled conditions.

The population of this study consisted of all elderly people aged 60 years and above who were diagnosed with gout arthritis and resided in Karangjambu Village, Karangjambu District, Purbalingga Regency. The sample was selected using a cluster random sampling technique, which involved grouping the elderly population according to their neighborhood clusters, writing down the names of eligible participants, placing them into a box, and randomly selecting names until the desired number of participants was reached. The first group drawn was assigned as the experimental group, and the second group as the control group. This method ensured that each participant had an equal chance of being selected, thus reducing selection bias.

The intervention was carried out over a period of seven consecutive days. Participants in the experimental group were instructed to consume 100 ml of boiled soursop leaf water twice daily, once in the morning after breakfast (08:00) and once in the afternoon after their meal (16:30). The boiled soursop leaf water was prepared according to a standard procedure: 10 fresh soursop leaves (approximately 3 grams) were washed, boiled in 600 ml of water until reduced to 200 ml, cooled, filtered, and then divided into two doses of 100 ml each. The control group did not receive any soursop leaf water but continued their usual dietary and health routines.

To collect data, the researcher used a portable GCU device to measure the participants' uric acid levels. A pre-test was administered before the intervention began to establish baseline uric acid levels, and a post-test was administered after the seven-day treatment period. All results were recorded in a standardized data collection sheet. In addition, the researcher conducted observations and brief interviews to monitor participants' adherence to the treatment and to identify any side effects or difficulties experienced during the intervention period.

The data obtained were analyzed using quantitative statistical techniques. First, the researcher calculated each participant's individual pre-test and post-test scores using the formula proposed by Arikunto (2006). Then, the mean scores and standard deviations for both groups were calculated. After that, the researcher computed the t-counted value using an independent sample t-test to determine whether there was a significant difference between the experimental and control groups. The statistical analysis was conducted following the steps recommended by Arikunto (2006). If the t-counted value was higher than the t-table value at the 0.05 significance level, the null hypothesis (H_0) would be rejected and the alternative hypothesis (H_1) accepted. This would indicate that the use of boiled soursop leaf water had a significant effect in reducing uric acid levels among elderly gout arthritis patients.

To ensure research ethics, the researcher provided an informed consent form to all participants, ensuring they were aware of the study's purpose, procedures, and potential risks. The researcher also guaranteed the confidentiality and anonymity of all data collected. Participants were informed that their participation was voluntary and that they could withdraw from the study at any time without any negative consequences.



3. RESULTS AND DISCUSSION

1. Description of the Data Collection Location

The case study location chosen was Karangjambu Village, Karangjambu Subdistrict, Purbalingga Regency. Karangjambu Subdistrict has an area of 5,621 hectares (56.21 km²), situated in a mountainous region at an altitude of around 1,500 meters above sea level. It is one of the 18 subdistricts in Purbalingga Regency, Central Java Province. It borders Pemalang Regency to the north, Karangmoncol Subdistrict to the east, Kertanegara Subdistrict to the south, and Karangreja Subdistrict to the west.

The selection of Karangjambu Village as the case study location was based on data from Karangjambu Community Health Center showing that out of 494 older adults, 93 individuals suffered from Gout arthritis, with ages ranging from 60 to 73 years. The high incidence rate indicates that gout arthritis is a fairly dominant health problem among the elderly in this area. In addition, many elderly people use various traditional methods to relieve joint pain, such as using topical ointments, plasters, balms, and over-the-counter medications.

In this region, many Soursop trees grow naturally, especially in residents' yards. Despite being easy to find, the use of soursop leaves as herbal medicine by the local community is still very limited. This is due to a lack of public knowledge about the health benefits of soursop leaves. Soursop leaves contain active compounds, one of which can help reduce uric acid levels and stabilize uric acid levels in the body. With this potential, soursop leaves can be used as a safe, affordable, and accessible alternative treatment, especially for elderly people with gout arthritis.

The use of soursop leaf decoction as an intervention was chosen because this plant contains active compounds such as flavonoids and alkaloids that are known to inhibit the Xanthine oxidase enzyme, an enzyme involved in the formation of uric acid. Based on previous research (Retnaningsih & Amalia, 2023), administering soursop leaf decoction for seven days proved effective in reducing uric acid levels in the blood. This makes soursop leaf decoction a viable alternative therapy, especially for the elderly who are more vulnerable to the side effects of chemical drugs.

2. Respondent Characteristics

The respondent in this case study was an elderly person with gout arthritis who lives in Karangjambu Village, Karangjambu Subdistrict, Purbalingga Regency. A total of one respondent who met the predetermined inclusion and exclusion criteria was involved in this case study, namely Mrs. M, aged 69 years. The respondent met the criteria of being between 60–90 years old and having gout arthritis.

Mrs. M, 69 years old, complained of pain in the joints of her right fingers, which appeared swollen, reddish, smooth, warm, and tight, and were difficult to move. The gout arthritis she experienced had lasted for less than three months. The respondent took pain relievers such as balm and Paracetamol, which she obtained from a nearby pharmacy.

3. Implementation of the Soursop Leaf Decoction Intervention

The intervention of giving soursop leaf decoction in this case study was carried out for seven consecutive days to an elderly person with gout arthritis residing in Karangjambu Village, Karangjambu Subdistrict, Purbalingga Regency. This intervention aimed to reduce uric acid levels naturally through a safe, simple, and community-applicable non-pharmacological method.

The preparation of soursop leaf decoction followed a Standard Operating Procedure (SOP). Each day, the researcher prepared 10 fresh soursop leaves (about 3 grams), washed



them thoroughly, and boiled them in 600 ml of water until the water was reduced to 200 ml. The decoction was then strained and cooled to room temperature. The soursop leaf decoction was given twice daily, at 08.00 a.m. and 04.30 p.m., after meals.

During the seven days of intervention, the researcher directly monitored uric acid levels every morning and evening.

4. Results

Table 4.1 Results of Uric Acid Level Measurement

Day To	Date	Time		Big Decline	Average
		(Morning, 07:30 WIB)	(afternoon, 18:30 WIB)		
0	11-05-2025	13.7 mg/dL			13.7 mg/dL
1	12-05-2025	12.4 mg/dL	10.9 mg/dL	1.5 mg/dL	11.6 mg/dL
2	13-05-2025	10.6 mg/dL	9.4 mg/dL	1.2 mg/dL	10 mg/dL
3	14-05-2025	12.8 mg/dL	12.5 mg/dL	0.3 mg/dL	12 mg/dL
4	15-05-2025	12.3 mg/dL	11.7mg/dL	0.6 mg/dL	12 mg/dL
5	16-05-2025	9.3 mg/dL	8.4 mg/dL	0.9 mg/dL	8.8 mg/dL
6	17-05-2025	8.2 mg/dL	7.6 mg/dL	0.6 mg/dL	7.9 mg/dL
7	18-05-2025	7.3 mg/dL	4.5 mg/dL	2.8 mg/dL	5.9 mg/dL

Table 4.1 shows the results of daily uric acid level measurements from May 11, 2025, which were carried out once a day, namely in the morning at 07:30 WIB. The uric acid level reached 13.7 mg/dL. From May 12, 2025 to May 18, uric acid levels were checked twice a day, in the morning at 07:30 WIB and in the afternoon at 18:30 WIB. Over time, there was a gradual decrease in uric acid levels, although there was a slight increase again on May 14 and 15 with levels approaching 12 mg/dL. However, after May 15, uric acid levels continued to decline consistently, with the most significant decrease seen on May 18, namely to 7.3 mg/dL in the morning and 4.5 mg/dL in the afternoon, so that the average for that day was only 5.9 mg/dL. These data indicate a fairly clear decrease in uric acid levels during the observation period.

DISCUSSION

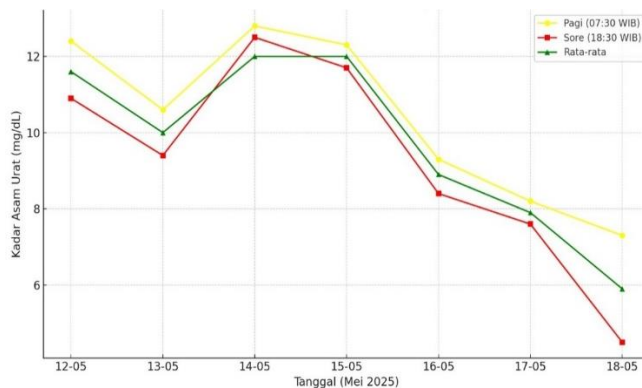


Figure 4.1. Graph of Uric Acid Level Reduction

Source: Personal Collection (2025)

This case study aimed to observe the effect of administering boiled water on reducing uric acid levels in elderly patients with . Sampling, time contracts, and health education were conducted on May 11, 2025, at 07:30 AM. The intervention was carried out for seven consecutive days, from May 12 to May 18, 2025, with administration twice a day, at 08:00 AM and 4:30 PM. Figure 4.1 shows the changes in uric acid levels (in mg/dL) measured daily from May 12 to May 18, 2025.

On day 0 (May 11, 2025, at 07:00 AM), a pre-test was performed to determine the initial uric acid level before administering the boiled soursop leaves water. The result was 13.7 mg/dL, indicating severe . This baseline value served as a reference to assess the effectiveness of the seven-day intervention.

On day 0, the respondent was also educated to avoid foods high in , such as organ meats, seafood, and high-protein foods. This education was crucial to ensure that no other factors influenced the reduction of uric acid levels besides the boiled soursop leaves water.

On day 1 (May 12, 2025), after the intervention started, the morning measurement at 07:30 AM showed 12.4 mg/dL and the evening measurement at 6:30 PM showed 10.9 mg/dL, resulting in an average of 11.6 mg/dL, a decrease of 1.5 mg/dL from the pre-test.

On day 2 (May 13, 2025), the morning result was 10.6 mg/dL and the evening result was 9.4 mg/dL, a further decrease of 1.2 mg/dL, with a daily average of 10 mg/dL. This reflects a continuing downward trend, indicating the respondent's consistency in following the intervention.

On day 3 (May 14, 2025), a slight increase was observed, with morning 12.8 mg/dL and evening 12.5 mg/dL, averaging 12 mg/dL, showing only a 0.3 mg/dL decrease from the previous day. This rise was caused by inconsistency in diet, as the respondent consumed a large amount of cassava leaves, which, according to (2021), can increase plasma uric acid levels and pose a risk for individuals with hyperuricemia.

The slight increase continued on day 4 (May 15, 2025), with morning 12.3 mg/dL and evening 11.7 mg/dL, averaging 12 mg/dL, a 0.6 mg/dL decrease. On day 5 (May 16, 2025), the levels dropped to 9.3 mg/dL (morning) and 8.4 mg/dL (evening), averaging 8.8 mg/dL, a significant decrease of 0.9 mg/dL.

Dietary education on low-purine foods and consistent boiled soursop leaves water consumption continued from the beginning and throughout the intervention. The respondent's uric acid levels fluctuated depending on diet, showing that lifestyle strongly affects purine



metabolism. Regular monitoring and education on avoiding high-purine foods are essential in managing hyperuricemia (, 2024).

The decrease continued on day 6 (May 17, 2025) with 8.2 mg/dL (morning) and 7.6 mg/dL (evening), averaging 7.9 mg/dL, and on day 7 (May 18, 2025) with 7.3 mg/dL (morning) and 4.5 mg/dL (evening), showing the most significant drop of 2.8 mg/dL to an average of 5.9 mg/dL. Overall, uric acid levels declined from 13.7 mg/dL (day 0) to 5.9 mg/dL (day 7).

This shows that consuming boiled soursop leaves water regularly twice daily (08:00 AM and 4:30 PM), combined with education on avoiding high-purine foods, has a significant effect on reducing uric acid levels in elderly patients with gout arthritis. This aligns with the findings of and (2023), who reported that drinking boiled soursop leaves water for seven consecutive days effectively reduced uric acid levels in elderly gout arthritis patients. The effect is linked to active compounds such as and in soursop leaves, which act as natural antioxidants and diuretics, helping reduce uric acid levels by increasing urinary excretion. Thus, boiled soursop leaves water can be used as a supportive non-pharmacological therapy for elderly individuals with hyperuricemia.

After the case study ended, the researchers also provided a post-test and further education so the respondent could continue consuming boiled soursop leaves water independently at home. This supports the findings of and (2023), who stated that regular and independent consumption of boiled soursop leaves water at home helps maintain stable uric acid levels and prevent recurrence in gout arthritis patients.

4. CONCLUSION

Based on the results of the seven-day case study conducted on an elderly individual with in , it can be concluded that:

1. The administration of boiled twice daily for seven consecutive days successfully reduced uric acid levels from 13.7 mg/dL to 5.9 mg/dL. This indicates the potential use of soursop leaf decoction as a non-pharmacological therapy in managing gout arthritis in the elderly.
2. The uric acid measurement before the intervention showed that the respondent had . After the intervention, there was a significant decrease in uric acid levels, reaching normal limits, supporting the effectiveness of the intervention.
3. The respondent's consumption of high-purine foods, such as , posed a risk of increasing uric acid levels in the blood. After experiencing an increase on day 3 (average 12 mg/dL), the continued administration of soursop leaf decoction until day 7 significantly reduced the levels to an average of 5.9 mg/dL. This decrease is supported by the presence of flavonoids, alkaloids, and saponins in soursop leaves, which help inhibit uric acid formation and enhance its excretion through urine.
4. Documentation of the administration process showed that the decoction was consistently given twice daily along with education about avoiding high-purine foods, which contributed to the successful reduction of uric acid levels.

Thus, this case study successfully achieved its general objective of identifying the effects of soursop leaf decoction on reducing uric acid levels, as well as its specific objectives of measuring uric acid levels before and after the intervention and documenting the intervention process systematically.



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