

The Effect of Salam Leaf (*Syzygium polyanthum* Wight) Decoction to Reduce Uric Acid Levels in Humans' Blood: An Attempt to Globalize Traditional Medicine

Nisa Qurrota A'yun¹, Nita Puspita Sari², and Rizqi Supramulyana Putra³

¹Faculty of Vocational, Universitas Airlangga, Surabaya, East Java, Indonesia

²Faculty of Humanities, Universitas Airlangga, Surabaya, East Java, Indonesia

³Faculty of Public Health, Universitas Airlangga, Surabaya, East Java, Indonesia

Corresponding author: nisa.qurrota.ayun-2017@vokasi.unair.ac.id

Abstract

Hyperuricemia is the cause of high uric acid in the blood. The use of synthetic medicine has side-effects for our health then it needs herbs such as Salam plant (*Syzygium polyanthum* Wight). Salam leaf widely used as flavor foods has another benefit to decrease uric acid, economical medicine, and no harmful side-effects. Salam leaf's active ingredients contain flavonoids as an inhibitor of xanthin oxidase enzyme. The aim of the study is as the solution to traditional treatment for hyperuricemia in Asian people, especially Indonesia. The study was implies descriptive method in collecting the data. The use of salam leaf decoction quickly reduce hyperuricemia uric acid levels before and after consuming in the range of 2-3. Therefore, traditional treatment should be developed to manifest a healthy society in Asia.

Keywords: *Hyperuricemia, uric acid, greeting leaf extract*

1. Introduction

Sustainability in the health sector is one of the objectives to be achieved in the SDGs. The success of health problems become a common goal that must be realized. One of them is increasing life expectancy, especially the elderly. Based on the continent, Asia occupies position number 5 in the world with the highest life age in Singapore, while Indonesia occupies the 6th position.

Healthy elder brings economic impact for families, communities and governments. Improved health of the elderly then the burden of childbearing age to old age is reduced and the economy of families with an increasing old-age dependency ratio.

Uric acid in 2016 ranks second after hypertension that is dominated by the elderly. However, based on WHO, uric acid is not only suffered by elderly people but also people of productive age. The age range under 34 years of 32% and over 34 years 68% (WHO, 2015). The prevalence of hyperuricemia and gout in Asia in the past decade about 13% -25%. Especially in Indonesia based on data Riskesdas prevalence joint disease in 2013, 11.9% and going against the coastal communities as they often eat fish and alcohol. Such a situation could occur over excretion uric acid or decreased excretion of uric acid or a combination of the two. This proves that the disease should be treated immediately.

Gout is a chronic disease but it is not contagious, the disease is characterized by the presence of hyperuricemia or high level of uric acid in the blood. Uric acid is produced by purine metabolism enzyme assisted guanase and xanthine oxide as the end product of purine metabolism when it reaches physiological limits of solubility turned into crystals of monosodium urate. If the levels of uric acid in the blood is over the normal then build up crystals in the joints and capillaries, then the crystal rub together and doing the movement in every cell of the joints which cause severe and unbearable pain that occur at any time swelling and a burning sensation in the joints.

Today all the convenience felt in every sphere of human life. And this should not enrich traditional shifts, especially in the field of health. Where this era of progress should be an appropriate means to remind the facilities and infrastructure in the health sector, especially in the field of traditional, known as traditional medicine. The using of synthetic drugs has side effects for the body, therefore it is necessary to use traditional herb medicine. the herb has long been used by ancestors. Likewise with therapies that utilize plants or medicinal plants. One was the infusion of the leaves is useful as a traditional treatment for gout. Salam leaf (*Syzygium polyanthum*) is known in Indonesian as a spice for flavoring dishes because it has a distinctive flavor that adds to the delicacy of the cuisine, which to this day yet beneficial properties for the health as a traditional medicine disease uric acid. Other diseases that could be treated among others

are diarrhea, cholesterol, diabetes (Hidayat, 2015). Salam leaf infusion would be an easy and inexpensive traditional medicine that does not cause long-term effects and works naturally.

2. Research Methods

This research is qualitative descriptive research that emphasizes the power source analysis, data, by relying on existing theories and concepts to be interpreted and analyzed critically.

3. Discussion

Salam leaves contain tannins, essential oils, sesquiterpenes, triterpenoids, phenols, steroids, citral, lactones, saponins, and carbohydrate. Additionally, the leaves also contain several vitamins, including vitamin C, vitamin A, thiamine, riboflavin, niacin, vitamin B6, vitamin B12, and folate. Even minerals such as selenium contained in the womb of the leaves. Salam leaf is one of the plants contains bioactive substances that affect the level of uric acid in the blood.

Flavonoids have biological and pharmacological activity, such as antibacterial for flavonoid hydroxyl groups, anti-inflammatory, enzyme inhibition, allergic activity, the antitumor activity of cytotoxic mechanisms of flavonoids to inhibit inflammation which in high concentrations can inhibit the release. Arachidonic acid and secretion of lysosomal enzymes from the membranes by blocking the cyclooxygenase pathway, lipoxygenase pathway, and phospholipase A2, whereas low concentrations only block the lipoxygenase pathway. Results of research conducted by Wientarsih et al (2005) showed that the herbal extract of leaves of *Syzygium polyanthum* helps lower uric acid levels in mice hyperuricemia. Research on extract leaves with a dose of 1.25 g / kg body weight can lower uric acid levels in the blood as male white mice effective. Salam Leaf minimal toxicity testing (animal experiments in mice at a dose of 9.6 mg/kg, even at a dose of 4200 mg/kg) showed no acute or sub-acute toxicity in mice. Other research boiled leaves at a dose of 2.5 g / kg body weight can lower uric acid levels in male white mice equivalent to allopurinol dose of 10 mg/kg.

Research conducted Darussalan and Rukmi 2016 salam leaves in this study were weighed at a dose of 0.36 g / kg BW. Afterward \pm 1,500 ccs of water were added to the pot and heated. Once the water in the pot boils, add salam leaves which have been weighed into the pan to boil for \pm 15 minutes with a boiling point of 90 degrees Celsius. Then the leaves in boiled water are cooled down. After that, measured by using a measuring cup of 100 ccs, so that each of the respondents consumes boiled water leaves 100 ccs every morning for 14 days. Measurement of uric acid levels do as much as 2 times that before it started giving cooking water bay leaves, and at day 14 or when the last day of treatment. Comparison of the number of female respondents' gender by 83.3% (n = 20) and men for 16.7% (n = 4). Respondents before the administration leaves boiled water showed that the average uric acid levels are 7279 mg/dl, a median of 7 mg/dl with a standard deviation of 1:24 mg/dl. The Lowest levels of uric acid are 6 mg/dl and the highest 11.2 mg/dl. Respondents after consuming decocting salam leaves were found that the average level of uric acid was 6.76 mg/dl, median 6:55 mg/dl with a standard deviation of 1:51 mg/dl. The Lowest levels of uric acid were 4.3 mg/dl and the highest 11.4 mg/dl. For normal uric acid levels as much as 6 respondents. A decrease in uric acid levels was significantly in 19 respondents remain in the range of hyperuricemia is a range of 6124 up to 7401 mg/dl, while the other five respondents experienced a rise in uric acid levels. This is because, in this research, researchers did not control the risk factors in addition to the use of the gout medication. Thus, it is necessary to control other risk factors in later studies with a larger sample.

Another study conducted by Andriani and Chaidir in 2016 explained that in this study, the average levels of uric acid before being given decocting salam Leaf is 7.16 mg / dL, with the high uric acid level was 8.2 mg / dL and uric acid lowest levels of 6.4 mg / dL. Average uric acid levels after an administration leave boiled water is 5.76 mg / dL, with the high uric acid level was 6.7 mg / dL, and the lowest levels of uric acid were 4.9 mg / dL. The average difference in the results of a decrease in uric acid levels before and after administration of bay leaves boiled water is 1.40 mg / dL. 2 test results show the average difference there is a decrease in uric acid levels between before and after the water decoction of leaves in patients with gout.

Another study conducted by Azaki et al (2007), hyperuricemia herbal extracts have proven to reduce pain in patients with symptomatic hyperuricemia at day 28 compared with the placebo group for an alleged decrease in the release of proinflammatory cytokines (TNF- α , IL-6, IL-1 β). A significant decline in levels of uric acid of 19 respondents hyperuricemia which levels ranged from 6.124 to 7.401 mg/dl, while five other respondents have elevated levels of hyperuricemia because, in this study, the researchers did not control the risk factors besides. for gout medication use. Consequently, it is necessary to control other risk factors in future studies with a larger sample.

Those studies above have proof that salam leaves decoction lowers uric acid levels in the blood. However, salam leaves decoction used in the studies above has a disadvantage in the level of resistance of decay. Because of the way of making is manual and without any additional material that makes salam leaves decoction durable. Hence, in the treatment of gout using salam leaves decoction the therapist should make new salam leaves decoction every day to guarantee the same content without indications of their decomposition.

In this case, innovation is required to use salam leaves decoction as traditional medicine for gout disease who later developed further when making salam leaves decoction is widely marketed, durable, efficient way to carry around and easy to consume. salam leaves decoction is made with a dose of 0.36 g / kg BW. Afterward \pm 1,500 ccs of water were added to the pot and heated. Once the water in the pot boiling, add bay leaves which have been weighed into the pan to boil for \pm 15 minutes with a boiling point of 90 degrees Celsius. After a cold packed in aluminum plastic sachet packaging airtight, after which it sterilize with hot temperatures to kill microorganisms that cause decay is in salam leaves decoction. It makes products salam leaves decoction is more durable, easy to carry anywhere and widely marketed. Apart from the economic aspect by distributing salam leaves decoction, expand salam leaves decoction also obtained a social benefit that is growing back "Herb" as the original heritage of Indonesia. Jamu in Indonesia comes from a plant native to Indonesia, need to pull the hands of the present generation to develop the Indonesian heritage.

4. Conclusion

Giving stew leaves with a dose of 0.36 g / kg BW made by the method of infusion in water \pm 1,500 ccs. After that, measured by using a measuring cup of 100 ccs and given to patients with hyperuricemia proven to reduce uric acid levels with a significant difference between the cooking water before the administration leaves with boiled water after the administration of bay leaves. Decreased levels of uric acid in the blood ranges between 2-3 mg/dl, decreased levels of uric acid in the blood depends also to a control group that was added in the treatment. The decoction of leaves has a role as widely marketed medicine or consideration for the use of health care workers to patients with hyperuricemia as a complementary therapy in pharmacology.

Therefore, salam leaves decoction has both health and economic value in society. This research also suggest that later research could apply this research as the reference to produce salam leaves decoction as ready to drink product in the sachet and has durable salam leaves decoction in the long term.

References

- Andriani, Aida dan Reni Chaidir. 2016. *Pengaruh Pemberian Air Rebusan Daun Salam (Syzygium polyanthum) terhadap Penurunan Kadar Asam Urat*. Bukit tinggi. Jurnal Ipteks Terapan. Vol. 10:12 hal 112-119.
- Ariyanti, R. 2007. *Pengaruh Pemberian Infusa Daun Salam (Eugenia polyantha Wight.) Terhadap Penurunan Kadar Asam Urat dalam Darah Mencit Putih Jantan hiperuricemia*, Skripsi Fakultas Farmasi Universitas Muhammadiyah Surakarta, Surakarta.
- Badan Pengawas Obat dan Makanan. 2004. *Kandungan kimia sembilan tanaman obat unggulan*.
- Darussalam, Miftafu dan Dwi Kartika Rukmi. 2016. *Peran Air Rebusan Daun Salam (Syzygium polyanthum Wight) dalam Menurunkan Asam Urat*. Sleman. Media ilmu kesehatan. Vol. 5 : 2. Hal 83-91.
- Djohari, Meiriza dan Rofiparamitha. 2015. *Efektifitas Rebusan Daun Salam (Syzygium Polyanthum) Terhadap Penurunan Kadar Asam Urat Dalam Darah Mencit Putih Jantan*. Pekanbaru. Pharmacy, Vol. 12:2. Hal. 176-185.
- Fariz, Abshar dkk. 2018. *Tanaman Obat yang Berefek Sebagai Antigout*. *Jurnal Pharmascience*, Vol. 05, No. 01, Februari hal 22 – 31.
- Febriyanti dan Mira Andika. 2018. *Pengaruh Pemberian Rebusan Daun Salam (Syzygium Polyanthum) terhadap Kadar Asam Urat Pada Lansia*. *Jurnal Stikes Mercubaktijaya Padang*, Vol XII, 10 Oktober 2018.
- Murzalina, Cut dkk. 2017. *Perubahan Kadar Asam Urat Darah Mencit (Mus Musculus) pada Pemberian Ekstrak Etanol Daun Salam (Syzygium Polyanthum Wight) setelah Diinduksi dengan Kalium Oksanat*. *Jurnal Patologi Klinik Fakultas Kodekteran Universitas Syiah Kuala*. Banda Aceh.

- Pidrayanti. 2008. *Pengaruh Pemberian Ekstrak Daun Salam (Eugenia Polyantha) Terhadap Kadar Ldl Kolesterol Serum Tikus Jantan Galur Wistar Hiperlipidemia*, karya tulis ilmiah fakultas kedokteran Universitas Diponegoro, Semarang.
- Utami, Prapti. 2003. *Tanaman Obat Untuk Mengatasi Rematik dan Asam Urat*. Surabaya : Agro Media.
- Wijayakusuma, H. 2002. *Tumbuhan Berkhasiat Obat Indonesia Rempah, Rimpang dan Umbi*. Prestasi Instan Indonesia, Jakarta.