BioLink : Jurnal Biologi Lingkungan, Industri dan Kesehatan, Vol. 9 (2) Feb (2023)
ISSN: 2356- 458X (print) ISSN: 2597-5269 (online)
DOI: 10.31289/biolink.v9i2.8219

BioLink
Jurnal Biologi Lingkungan, Industri, Kesehatan

Available online http://ojs.uma.ac.id/index.php/biolink

QUALITATIVE ANALYSIS OF SALAK LEAF EXTRACT (SALACCA SUMATRANA)

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Submited : 18-10-2022; Reviewed : 09-01-2023; Accepted : 10-02-2023

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Abstract

Qualitative analysis research of salak leaf extract has been carried out, where the salak leaf extract Padangsidimpuan has characteristic with a larger size and does leaf has a meat which has a distinctive sour taste, because of its acid content, it is processed in the form of salak leaf (Salacca sumatrana) which aims to analyze the levels of secondary metabolites in salak leaf which are expected to be a cholesterol-lowering herbal medicine. With the appropriate qualitative analysis of salak leaf using the extraction method, namely the maceration method with methanol solvent, the results obtained that salak leaf contains Secondary metabolites consisting of alkaloids, phenolics, saponins, tannins, terpenoids, however, it does not contain flavonoids and steroids.

Keywords: Qualitative Analysis; Salak Leaf; Extraction

***How to Cite**:* Lubis, J.A., Harahap, S.T., & Harahap, F.S. (2023). Qualitative Analysis of Salak Leaf Extract (Salacca sumatrana), *BioLink: Jurnal Biologi Lingkungan, Industri dan Kesehatan,* 9 (2): 183-189.

INTRODUCTION

Southern Tapanuli is famous for the City of Salak, with the type of salak (*Salacca sumatrana*) including the palmae (Araceae) tribe that grows in clumps, thrives in several areas. This plant has a variety of flavors, colors and sizes. In terms of taste, some are sweet and some are sour. The species is *Salacca sumatrana* (Salak Sidimpuan) while Salacca edulis consists of 2 species, namely the variety (*Zalacca gaertn* Voss) and the variety Amboinensis (*Salacca edulis* Reinw) called salak bali (Ashari, 2006). Salak Padangsidimpuan is a fruit that is well known in Sumatra and even in Java. The taste is sweet, chelate (between sour and sweet), sour and legit which makes it different from salak pondoh and other types. Salak farming in South Tapanuli is located in the Districts of West Padangsidimpuan, East Padangsidimpuan, Batangtoru and Siais (Kaputra & Harahap, 2004). This slightly sweet-tasting fruit contains a lot of vitamin A, vitamin C and beta carotene so that it can be used as an antioxidant (Lingga, 2012).

The large number of salak productions in Padangsidimpuan with different taste characteristics makes a new discovery of salak leaf ready-to-serve tea. Usually salak leaves are just left alone and not used, but by doing this research it turns out that salak leaves can be processed into tablets in the form of drugs that may be efficacious as drugs to reduce uric acid levels and increase antioxidants in the body because of the content in it. (Girsang, 2020).

The results of the analysis showed that the content of salak fruit leaves consists of vitamins, potassium, and other antioxidant substances. Potassium in salak fruit is useful for maintaining heart health. Salak intake can meet the amount of potassium needed by the body. With the presence of potassium in this salak fruit, it can balance cholesterol levels in the blood, while cholesterol is the first cause of blocked coronary arteries in the heart and brain that causes heart attacks and strokes. From the results of these experiments, the potassium content contained in salak is also still there. With an economical price, salak leaves can be reached by consumers to be used as drugs to reduce uric acid levels and increase antioxidants in the body (Setiyabudi et al., 2021). By doing several stages of testing to determine the content of the salak leaf tea.

Therefore, with the title "Test Concentration of Salak Leaves (*Salacca*

sumatrana) as a Drug to Reduce Uric Acid Levels in the Blood and Increase Antioxidants in the Body" it is necessary to conduct research on chemical content tests and test the concentration of salak leaf tea which is treated on white rats. This is expected to help the development of science in the health sector, especially in the treatment of reducing uric acid levels in the blood and increasing antioxidants in the body.

RESEARCH METHODS

Wistar rats used amounted to 40 tails. Only male wistar rats were used, because it was feared that there would be errors in measuring uric acid levels in the blood and increasing antioxidants in the body due to the influence of the hormonal system, because female rats would increase the hormone estrogen during menstruation. Mice were acclimatized for 7 days to get used to the laboratory conditions. During the acclimation period, wistar rats were fed ad libitum with rice, corn and water. After acclimatization, all rats were fasted for 12-14 hours. According to Murray et al. (2003) the activity of HMG-CoA reductase significantly decreased the synthesis of exogenous cholesterol. On day 8, all the mice that had been fasted, blood samples were taken through the tail vein, for testing the initial total plasma cholesterol of the mice. The rats were then randomly divided into 4 treatment groups, namely the group of rats whose body weight was compared to the treatment, with corn rice and treated according to the given design.

Extraction. The fermentation results into a maceration container, left for 3-4 days. After the first extraction process is complete, the pulp is macerated again with a new filter liquid. The viscous extract that has been collected is then evaporated using a Rotary Vacum Evaporator to obtain dry methanol extract.

Alkaloid identification. The extract solution was spotted on the TLC plate, then eluted with eluent. After that, it is sprayed using Dragendorff reagent. Observed on uv lamps 254 and 366. After the plate is sprayed with Dragendorff reagent it will show brown spots on a yellow background (Harborne, 1987).

Flavonoid identification. The extract solution was spotted on TLC plates and eluted with the appropriate eluent. Then the spots were observed on UV lamps 264 and 366 after which they were sprayed with AlCl3. Flavonoids contain a conjugated aromatic system that will show a strong absorption band in UV and visible light. In the analysis with TLC and appearance with AlCl3 reagent. Lavonoids

will appear yellow spots and depending on their structure, flavonoids will fluoresce yellow, blue or green at 366 nm UV (Harborne, 1987).

Phenolic identification. The extract solution was spotted on TLC plates and eluted with the appropriate eluent. Then the spots were observed on UV lamps 264 and 366 after that they were sprayed with FeCl3. Positive for phenol if the stain is green, red, purple, blue or strong black (Harborne, 1987).

Saponin identification. The extract solution was spotted on TLC plates and eluted with the appropriate eluent. Then the spots were observed on UV lamps 254 and 366 and sprayed with vanillin. Saponin glycosides when detected with vanillin-sulfuric acid spray reagent will give a blue to violet blue color, sometimes in the form of red, yellow, dark blue, purple, green or brownish yellow patches (Harborne, 1987).

RESULTS AND DISCUSSION

The results of qualitative tests through phytochemical screening carried out using ethanol solvents showed that the positive salak leaf samples contained alkaloids, flavonoids, phenolics, saponins, tannins, and terpenoids.

Table 1. Chemical Content of *Salak sumatrana* Leaves

No.	Chemical Compounds	Reaction Results	Information
1.	Alkaloid	+	A brown deposit is formed
		+	A red deposit is formed
2.	Fenolik	+	Formed is black color
3.	Flavonoid	-	No orange color formed
4.	Saponin	+	Forms permanent foam for ± 7 minutes
5.	Tanin	+	Formed in black color
6.	Steroid	-	No grand color formed
	Terpenoid	+	Formed in red

Alkaloids. The test found that alkaloids in the results of the analysis can act as anti-tumors, alkaloids in karpain compounds can also inhibit the performance of microorganisms, so that they can inhibit the development and growth of microorganisms in the body such as fungi and bacteria that are not needed by the system in the body (Setyawaty, 2020; Setyati et al., 2020).

Phenolic. Identification of phenolic compounds is done by adding 5% FeCl3. The addition of 5% FeCl3 will cause a color change such as green, yellow,

orange, or red (Harborne in Sangi et al., 2012). In phenolic testing, gaharu leaf infusion formed an orange color and kombucha agarwood leaves formed an orange-black color. The results of this identification indicate that it clearly contains phenolic (Shabir et al., 2018) Phenolic compounds are known as secondary metabolites, which are important, derived from phenylalanine and tyrosine. These compounds contain large amounts of a variety in plants. Phenolic compounds in plants are important and have potential as antioxidants because of the hydroxyl groups that can prevent free radicals (Nithya et al., 2016).

Flavonoids, are often marked in red as a result of their reduction by concentrated hydrochloric acid and magnesium. Flavonoids are often used as reducing compounds that both inhibit oxidation reactions in the body, both enzymatic and non-enzymatic, so that flavonoids are antioxidants that play a role in reducing and inhibiting the growth of cancer cells (Kopustinskiene et al., 2020).

Saponins, from the results found foam for 7 minutes, according to Robinson & Padmawinata (1995) compounds that have polar and non-polar groups are active, so that when saponins are shaken, micelles form so that they are shaped like foam (Suica-Bunghez et al., 2016; Dasopang, 2017). Saponins are glycosides in plants which consist of sapogenin groups, hexose, pentose or uronic acid elements. Saponins in the world of health act as raw material for the synthesis of steroid hormones (Girsang et al., 2019)

Tannins, from the results of the analysis, it is known that agarwood leaves contain tannins from the occurrence of color changes when the addition of 1% Fe Cl3 solution, which is green-black. Tea also contains tannins called ellagitannins. Like other polyphenols, ellagitannin has strong antioxidant and anti-inflammatory properties (Adjeng et al., 2020). Ellagitanin is also said to have the potential to treat and prevent cancer (Robbiyan et al., 2021).

Terpenoids, from the results of the analysis characterized by the formation of a brown ring in the test solution after the addition of sulfuric acid, this is known to be useful as an anti-bacterial, monoterpenoids, terpenoids saponins, these compounds are fat-soluble, so they can be used as drugs for malaria, liver damage and diabetes (Tien et al., 2021).

CONCLUSION

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