

Exploration Of Active Compounds In Traditional Medicinal Plants Of The Community Of Aceh Besar District In Preserving Local Wisdom Of The Region

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Abstract. *The use of plants as medicine is closely related to the chemical compounds contained within the plants, particularly the active compounds they contain. The people of Aceh Besar are a society that still strongly adheres to their regional culture, such as wedding customs, Islamic holidays, mutual cooperation, regional specialties, and traditional medicine. The majority of the community still utilizes plants as traditional medicines as an alternative treatment for various ailments. This study aims to explore the active compounds found in traditional medicinal plants of Aceh Besar in preserving local wisdom. The sample consisted of people aged 60 years and above. The community utilizes medicinal plants to treat several ailments by boiling, squeezing, applying/sticking, brewing, mashing, crushing, and some are eaten directly. Active compounds in medicinal plants include flavonoids, saponins, alkaloids, tannins, triterpenoids, proteins, formic acid, fats, iron, vitamins, carbohydrates, potassium citrate, polyphenols, essential oils, carotenoids, steroids, phenolics, quinones, coumarins.*

Keywords: Active Compounds, Traditional Medicine, Local Wisdom.

1. Introduction

Indonesia's natural resources represent a potential resource for exploiting active compounds isolated from plants, which can be utilized in all aspects of human life, including health. The use of plants as medicinal ingredients is closely related to their chemical compounds, particularly their active compounds (Rahmawati et al., 2021).

Herbal plants are plants that have been identified and known, based on human observation, to contain compounds beneficial for preventing and curing disease, and performing specific biological functions. Traditional medicinal plants are often referred to as living pharmacies, which involve the use of land to cultivate medicinal plants for everyday use. In general, many traditional medicines are often used to treat various ailments. Medicinal plants have fewer, if any, side effects compared to chemical drugs, which is why many people prefer using traditional medicine (Kumontoy et al., 2023).

The people of Aceh Besar are deeply rooted in their local culture, such as wedding customs, Islamic holidays, mutual cooperation, regional cuisine, and traditional medicine. In terms of traditional medicine, urban communities rarely use medicinal plants to treat illnesses, as the plants they need are difficult to obtain and readily available medicines. Meanwhile, in rural areas, the majority of people still use medicinal plants as an alternative treatment because the plants they need are readily available.

The highest use of medicinal plants is the leaves, which are boiled (67%), diluted with water (25%), squeezed (3%), and applied topically (2%) (Cut Azura Izatul Nufus, 2022). Traditional medicine is currently widely used because, according to several studies, it does not cause many side effects, as it is still easily digested by the body. Parts of traditional medicine that are widely used or utilized by the community are roots, rhizomes, stems, fruits, leaves, and flowers. For example, cogon grass roots are used as a fever reducer. Curcuma rhizomes and

turmeric rhizomes are widely used to treat hepatitis. Cinchona stems are used to treat malaria. Cinna bark is widely used to treat high blood pressure. Noni fruit is widely used as a cancer drug (Ervilita et al., 2023). The use of medicinal plants by communities around the Sahendaruman protected forest area is a traditional wisdom that needs to be preserved and developed (Rumouw, 2017).

Local wisdom is one of the things that must be considered in environmental protection and management activities. This is stated in Law No. 32 of 2009 that environmental protection and management includes planning, utilization, control, maintenance, supervision, and law enforcement where all activities related to environmental protection and management must pay attention to several things including: (1) diversity of ecological characters and functions; (2) population distribution; (3) distribution of potential natural resources; (4) local wisdom; (5) community aspirations; and (6) climate change. (Maridi, 2015).

Local wisdom in utilizing plants in the Aceh Besar region as traditional medicines is feared. If efforts are not made to document this knowledge, more plants will become extinct due to ignorance of their benefits and roles in human life. Therefore, it is necessary to understand the active compounds and benefits contained in medicinal plants to preserve the cultural richness and local wisdom of the Acehnese people.

Nowadays, the majority of urban communities and young people are no longer aware of plants that can be used as medicine to cure various diseases. This is because the potential of each medicinal plant has not been widely documented and explored, resulting in the loss of local wisdom in a region. Based on this problem, researchers want to explore traditional medicinal plants in preserving local wisdom in Aceh Besar, so that the regional culture of traditional Acehnese medicine is maintained and developed more widely. Preserving the values of local wisdom and religious teachings related to the protection of natural resources and the environment is one form of traditional conservation carried out by the community. (Maridi, 2015).

The aim of this research is to explore the active compounds in traditional medicinal plants of the Aceh Besar district community in preserving local regional wisdom.

2. Method

This research is descriptive qualitative with observation, interview, and document review methods. Observations were conducted on medicinal plants that are still used by the community to treat several diseases, interviews were conducted with people who still use traditional medicine aged 60 years and above. And document review was conducted to see the chemical content contained in several traditional Acehnese medicinal plants. This research was conducted in 2 sub-districts, namely Lhoknga and Sukamakmur sub-districts within Aceh Besar Regency in June-July 2025. The sampling technique was carried out by purposive sampling. Purposive sampling is a sampling technique with certain considerations (Sugiono, 2012).

3. Results and Discussions

Based on observations and interviews with several residents of the Lhoknga and Sukamakmur sub-districts of Aceh Besar Regency, the majority of residents still use medicinal plants found around their homes as traditional remedies to cure various ailments. They have learned this knowledge from their parents, passed down through generations. The community has long believed that these plants can cure various ailments. The process of preparing medicinal plants varies depending on the type of plant and the disease, such as boiling, soaking or brewing, kneading or grinding, applying to the affected person, and applying to the affected person.

Some types of medicinal plants that are still used by the community include the following:

Starfruit Plant (*Averrhoa bilimbi* L)

Starfruit plants can grow in dry areas, on plains up to 500 meters above sea level. Starfruit trees bear fruit year-round. Starfruit fruits are round, oval, square, or torpedo-shaped, and range from 4-10 cm in length.

From Interviews with local residents revealed that they utilize the fruit, leaves, and flowers of the starfruit plant to treat illnesses. Starfruit fruit is used to lower high blood pressure by boiling it and drinking the water, or by eating the fruit directly. Starfruit leaves are also used to lower high blood pressure by boiling it and drinking the water. Starfruit flowers are used to treat goiter and coughs by crushing them and applying them to the affected area. To treat coughs, they are boiled and the water is drunk.

Traditionally, starfruit is widely used as a medicine for coughs, mouth ulcers, stomach aches, mumps, rheumatism, whooping cough, bleeding gums, cavities, acne, tinea versicolor, high blood pressure, paralysis, and to improve digestive function. Its chemical properties and pharmacological effects include analgesic, bile stimulant, anti-inflammatory, diuretic (Anonymous in Hesthiati, et al. 2019). Starfruit contains calcium oxalate, glucoside, pectin, flavonoid and triterpenoid extracts, tannins, proteins, formic acid, fat, peroxide, iron, saponins, phosphorus, alkaloids, sulfur, polyphenols, potassium citrate, vitamins A, B1, C, and carbohydrates. Starfruit flowers contain saponins, polyphenols, and flavonoids which are used as a medicine for coughs, mouth ulcers, flu, typhoid fever, and antibacterial (Halosehat, 2025). Ethanol extract of starfruit (*Averrhoa bilimbi* L.) at the lowest concentration of 0.4% has antibacterial activity against dysenteriae bacteria, *Salmonella typhi*, *Shigella typhi*, *Pseudomonas aeruginosa*, *Vibrio cholerae*, *Escherichia coli*, and *Staphylococcus aureus* (Maryam et al., 2015).

Starfruit leaves have been identified as a plant containing secondary metabolites, namely alkaloids, flavonoids, saponins, and tannins (Serli et al., 2024). Phytochemical compounds contained in the ethanol extract of starfruit leaves have been successfully identified, including saponins, tannins, steroids, flavonoids, and alkaloids. The total phenol and flavonoid levels of starfruit leaf extract can be determined and have the potential to be a source of natural antioxidants and anti-inflammatories, because they have very strong antioxidant activity and show anti-inflammatory activity (Hasim et al., 2019). Drying starfruit leaves (*Averrhoa bilimbi* L.) using an oven at 60°C produces phenolic phytochemical compounds, flavonoids, saponins, alkaloids, and steroids. In addition, this drying method is able to produce an inhibition zone diameter of 4.30 mm against *Escherichia coli* bacteria, making it potential to be used as a natural antibiotic candidate for broilers (Siregar et al., 2023).



Figure 1. Starfruit plant

Gelinggang Leaf (*Cassia alata*)

Observations and interviews with the people of Aceh Besar indicate that they frequently use gelinggang leaves to treat ringworm, both in children and adults. In the preparation of the medicine, gelinggang leaves are crushed and rubbed or applied to the affected area. They say gelinggang leaves are very effective in treating ringworm, with immediate results after a single application. According to Bharata et al. (2024), fungal skin infections such as tinea versicolor and athlete's foot can be effectively treated with the antifungal compounds found in gelinggang leaves. These compounds play an important role in inhibiting the growth and development of the fungus that causes skin infections and aiding the healing process of infected skin.

Ethanol extract of gelinggang leaves contains compounds that can inhibit bacterial growth, such as alkaloids, saponins, tannins, and flavonoids. These compounds are thought to inhibit *Staphyococcus aureus* bacteria (Kulla et al., 2023). Water extract of gelinggang leaves (*Cassia alata* L.) contains phenolic compounds, flavonoids, saponins, and tannins, which have antibacterial properties and can be used as an Antibiotic Growth Promoter (AGP) for poultry (Fajri et al., 2023).



Figure 2. Geulinggang leaves

Cat's Root/Earrings (*Acalypha indica* L)

The people of Aceh Besar call this plant "cat's root" because cats love to eat its roots. It turns out this plant has several regional names, including cekamas (Malay), lelatang, kucing-ucingan, rumput kokowongan (Sundanese), and rumput bolong-bolong (Javanese). The locals use the cat's root plant as a remedy for back pain, boiling the roots and drinking the water once a day.

From the information portal (2025) cat root plants are useful as a medicine for bacillary dysentery, amoebic dysentery, diarrhea, for children with low body weight (malnutrition), digestive disorders (dyspepsia) bleeding medicine, such as nosebleeds (epistaxis), vomiting blood (hematemesis), bloody stools (melena), blood in the urine (hematuria) Cat root plants for malaria medicine. Cat root plants as a medicine for constipation or difficulty defecating. Leaves, stems and roots contain saponins and tannins. Stems contain flavonoids, leaves contain essential oils. According to Silalahi (2019) *Acalypha indica* has activity as an antimicrobial, antioxidant, antidiabetes mellitus, anticancer, antistroke and improves sperm quality.

The benefits of cat root plants include gout, rheumatism, digestive disorders, irritable bowel syndrome, colitis, dysentery, diarrhea and Crohn's disease, chronic fatigue syndrome (CDS), wound healing, parasites, Alzheimer's disease, asthma, hay fever, cancer (especially for urinary tract cancer), certain types of brain cancer called glioblastoma, gonorrhea, and kidney

cleansing. Viral infections caused by herpes zoster, cold sores caused by herpes simplex and AIDS caused by the HIV virus (Wartaonline, 2023).

Several research results on cat root plants, the benefits of the cat's ear herb can be used as a treatment in lowering blood sugar levels, especially for the elderly (Toding et al., 2025). The bioactivity of the cat's root extract has an LC50 value of 0.4µg/mL which is toxic and has the potential to contain anticancer bioactive compounds (Permatasari et al.). The content of secondary metabolites of the *Acalypha indica* L plant is alkaloids, catechol, flavonoids, phenol compounds, saponins, and steroids, which are efficacious as antioxidants, anticancer, antiviral, antidiabetic, and antifungal (Kirom and Ramadhania). Identification of secondary metabolites from the extract of cat's ear leaves (*Acalypha indica* Linn) is positive for flavonoids and tannins in high intensity (Laut et al., 2020). Cat's root extract (*A. indica* L.) contains antimicrobial substances that can inhibit the growth of EPEC bacteria and *C. Albicans* fungi, containing alkaloid and tannin compounds. (Guli et al., 2023). Feeding tilapia fry with the addition of cat's root leaf extract can increase the immune response, as indicated by increased total leukocytes and phagocytic activity (Hutagaol et al., 2022).



Figure 3. Cat root plant

Tongkat Ali (*Eurycoma longifolia*)

The people of Aceh Besar use the tongkat ali plant to treat people possessed by spirits. They believe that whenever a person, whether a child or an adult, is possessed, they immediately seek out the tongkat ali plant and wave it over the possessed person's body until the spirit leaves.

The bioactive ingredients contained in the root and stem extracts of Tongkat Ali are alkaloids, tannins, triterpenoids, carotenoids, and coumarins, while the bioactive ingredients contained in the leaf extracts of Tongkat Ali are flavonoids, saponins, tannins, triterpenoids, carotenoids, and coumarins. The roots, stems, and leaves have the potential as antimalarials, antidiabetics, antidiarrheals, antifungals, antibacterials, antivirals, treatments for liver damage, menstrual disorders, antioxidants, and anti-inflammatory agents (Supartini and Cahyono, 2020). Tongkat Ali (*Eurycoma longifolia*) produces various secondary metabolites, eurycomanone, coumarin, and quassinoids. Eurycomanone has activity as an antimalarial, antipyretic, aphrodisiac, and cytotoxic activity, while quassinoids, coumarins, and glycosides can increase spermatozoa production and quality in the form of morphology and motility, and also increase testosterone synthesis and release in male cells. The bioactivity of El has been tested as anti-osteoporosis, antimicrobial, aphrodisiac, anticancer, angiogenesis, and hepatoprotective (Silalahi, 2019).



Figure 4. Tongkat Ali/Earth Stakes plant

Phyllanthus Niruri (*Phyllanthus niruri*)

The meniran plant is known to the people of Aceh Besar as the oen mee tanoh plant. The oen mee tanoh plant (meniran) is easily found in vacant lots, growing wild in moist soil. The community uses this plant as a malaria remedy. They process the entire plant, from the roots, stems, and leaves, by boiling it. Boiling is done until approximately one glass of water remains, and the water is drunk, and this is done once a day. According to herbacore (2021), meniran is useful in treating inflammation (phytochemicals). Treating viral infections, healing stomach ulcers, reducing gastric acid secretion, lowering blood sugar, treating kidney stones, treating liver disease, lowering high blood sugar, hepatitis B, and treating gallstones.

Some research results on the meniran plant include, meniran herb extract contains alkaloids, flavonoids, saponins, steroids, tannins, and phenolics (Rivai et al., 2013). Phytochemical screening of powder and 70% ethanol extract of meniran herb found flavonoids, saponins, tannins, quinones, triterpenoids, coumarins and essential oils (Tambunan et al., 2019). Identification of the chemical components of leaf powder in green meniran (*Phyllanthus niruri* L.) positively contains tannins (catechols), saponins and carbohydrates (Handayani and Nurfadillah). Meniran leaf juice (*Phyllanthus niruri* L.) has the ability to inhibit the growth of *Candida albicans* fungus (Sophia and Suraini, 2024).



Figure 5. *Phyllanthus niruri* plant

Mimosa pudica (*Mimosa pudica* L.)

The mimosa plant is often found in bushes, with thorny stems and leaves that fold shut when touched. The people of Aceh Besar use the mimosa plant as a gout remedy. They prepare it by boiling it. This is done by adding about 3 cups of water until 1 cup remains. Some people

boil the entire mimosa plant, including the leaves, stems, and roots, while others boil only the leaves.

This plant is a wild plant with good pharmacological effects for the treatment of several types of diseases such as antidiabetic, antioxidant, antidepressant, antihyperlipidemic, anti-inflammatory, antihyperuricemic, and burn healing. A total of 5 potential compounds were successfully identified, namely luteolin, apigenin, quersetin, avicularin, and stigmasterol (Bili, 2022). The results of the phytochemical screening test of the ethanol extract of the mimosa pudica herb, obtained active compound components, namely flavonoids, alkaloids, tannins, saponins, and steroids. The mimosa pudica herb is very toxic to *Artemia salina* Leach and the LC50 value of the ethanol extract of the mimosa pudica herb against *Artemia salina* Leach larvae is LC50 61.517 µg/mL (Prahayu et al., 2024). Mimosa pudica leaves contain various nutrients that are beneficial for the body, such as flavonoid, saponins, tannins, alkaloids, and polyphenols that can overcome digestive problems, accelerate wound healing, maintain skin health, increase immunity, treat diabetes, and prevent cancer (Murzen, 2024). Mimosa pudica plant extract can be used as a natural preservative for tomatoes at a concentration of 6% with a storage period of 11 days (Fadlian et al., 2016).

Mimosa pudica root extract can inhibit the growth of *Colletotrichum* sp. fungal colonies. It is influenced by the presence of flavonoids, mimosine, alkaloids, and tannins which have antifungal properties (Ratri). Ethanol extract of *Mimosa pudica* L. leaves contains secondary metabolites, namely flavonoids, alkaloids, and tannins. The antioxidant activity of *Mimosa pudica* L. ethanol extract using DPPH is categorized as a very strong antioxidant (Diningsih et al., 2025). In *Mimosa pudica* leaves, flavonoids are found that can attack the digestive system of insects, contain toxins against insects, eradicate rice weevils (*Sitophyllusoryzae* L.) (Oktavia et al., 2021). *Mimosa pudica* leaf extract contains flavonoids, saponins, and tannins which can work as biolarvicides, namely they can kill instar III *Aedes aegypti* larvae (Suhardjo, 2018).



Figure 6. Mimosa plant

Peacock Plant (*Caesalpinia pulcherrima*)

Interviews with the people of Aceh Besar revealed that the peacock plant is used to treat shortness of breath by utilizing its leaves and flowers. The plant is boiled and the water is drunk daily by the sufferer.

Information from IDN Medical (2025) states that peacock plants are useful in relieving fever, treating hepatitis (tannin), mouth ulcers (vitamin C), overcoming bad breath (gargling), diarrhea (zerumbone compounds), and this plant contains tannins, gallic acid, resin, red substances, and benzoic acid. While the leaves and bark contain alkaloids, saponins. The results of phytochemical screening of powdered simplicia and extracts contain secondary metabolites of alkaloids, flavonoids, tannins, saponins, triterpenoids/steroids and glycosides. Peacock flower leaf extract has the most effective antipyretic activity at a dose of 100mg/kgBW

(Handayana et al., 2024). Peacock flower extract has antibacterial activity against *Staphylococcus aureus* and *Escherichia coli* (Mustapa and Tomomi, 2016).

Flower besides being beautiful, the peacock (Caesalpinia pulcherima) has many benefits, including treating irregular menstruation, red eyes, diarrhea, mouth ulcers, flatulence, and fever cramps in children. For diarrhea, the bark of the peacock flower is ground until smooth and then brewed with warm water. The flowers contain tannin, gallic acid, resin, red pigment, and benzoic acid. The leaves contain alkaloids, saponins, tannins, glycosides, and calcium oxalate. The bark contains plumbagin, lumbago, tannins, tannins, alkaloids, saponins, and calcium oxalate (Taman Kita, 2025).



Figure 7. Peacock plant

Noni plant (*Morinda citrifolia*)

The noni fruit is known for its distinctive odor, but it also holds numerous benefits. The people of Aceh Besar use the fruit and leaves as traditional medicine. They use the leaves as a remedy for hemorrhoids by boiling them and drinking the water, while the fruit is used as a remedy for tonsillitis by pounding or mashing it and eating it directly. Noni leaves contain protein, fat, carbohydrates, fiber, calcium, potassium, phosphorus, iron, vitamin A, vitamin B3, and vitamin C. Noni fruit also contains carbohydrates, protein, vitamin C, vitamin E, biotin, folate, magnesium, potassium, and calcium (Adrian, 2023).

Ethanol extract of noni leaves (*Morinda citrifolia* L.) from Taliabu Island, North Maluku Province has antioxidant activity with an IC₅₀ value of 275.0792 ± 1.929 µg/mL (Irfayanti et al., 2023). An alternative treatment for dyslipidemia is using noni fruit (*Morinda citrifolia*) which contains xeronine, proxeronine, ascorbic acid, linoleic acid, β-carotene, flavonoids, and caprylic acid. The compound suspected of lowering cholesterol is flavonoids. Flavonoid compounds in noni inhibit HMG-CoA reductase, thereby reducing total cholesterol and LDL. Noni fruit can also be useful as an antioxidant, anti-inflammatory, antinociceptive, anti-cancer, anti-diabetic, and anti-hypertensive (Forcepta et al., 2021).



Figure 8. Noni plant

Capa leaves (*Blumea balsamifera*)

The people of Aceh Besar use capa leaves to treat aches and pains. They boil the leaves and then drink the water. This is done if the body feels sore or weak. According to Masyudi (2022), natural ingredients found in capa leaves include essential oils, limonene, borneol, glycosides, palmitic acid, myristicin, tannin, cineole, and even pyrokatechin, which can be used to treat diarrhea, itching, shortness of breath, and also to heal wounds.

The results of the study (Rahmi et al., 2021) stated that the ethyl acetate fraction of sembung leaves (*Blumea balsamifera* (L.) DC) has a moderate antioxidant activity with an IC50 value of 221,821 ppm with a total phenolic content of 161,101 mg GAE/g. Modification of Sembung leaves into nanoparticles effectively increases antioxidant activity, testing using the ferric thiocyanate (FTC) and thiobarbituric acid (TBA) methods shows that the ethyl acetate fraction nanoparticle preparation from sembung leaves has greater potential in preventing cell damage caused by free radicals (Saufani et al., 2024). Sembung leaves (*Blumea balsamifera*) contain flavonoid compounds (Mustapa et al., 2024). The n-hexane, ethyl acetate and ethanol extracts from Sembung leaves (*B. balsamifera*) have the potential to be developed for use as natural antioxidants and antibacterials (Ameliana et al., 2022).



Figure 9. Capa/sembung leaves

Cape Gooseberry (*Physalis angulata* L)

The ground cherry plant grows wild and is easily found in bushes and around homes. The people of Aceh Besar call this plant caplokan. They use the leaves, roots, and stems of the plant as a remedy for diabetes mellitus (DM). It is prepared by boiling it in three glasses of water until the water is reduced to one glass, and drinking it once daily.

The *P. angulata* plant has been widely used as a traditional medicine to increase blood, relieve muscle aches, asthma, diabetes, chickenpox, coughs, fever, diarrhea, hypertension, and back pain. This plant contains many secondary metabolites isolated from its roots, leaves, stems, and flowers, such as physalin, withanolides, and flavonoid glycosides. Several studies have also reported that this plant has biological and pharmacological activities such as antioxidant, anticancer, anti-inflammatory, antidiabetic, antidiarrheal, antibacterial, antifibrosis, and antihypercholesterolemic activities (Fadhli et al., 2023). Giving ciplukan herbal infusion at concentrations of 2.5% b/v, 5% b/v, 10% b/v, and 20% b/v can reduce total cholesterol levels in male Wistar rats fed a high-fat diet by 41.78%, 53.84%, 68.38% and 79.77% (Fitriani, 2011).



Figure 10. Cape gooseberry plant

Fragrant Pandan (*Pandanus amaryllifolius*)

Pandanus leaves are known for their distinctive fragrance and are often used as a fragrance and natural green coloring in cooking. Pandanus leaves have numerous benefits, but many people are unaware of their benefits. Interviews with the people of Aceh Besar revealed that they use pandan leaves not only as a fragrance and natural coloring in food but also to treat cholesterol, body aches, and insomnia. They consume pandan leaves by boiling them and drinking them, a practice they do daily. And almost every yard is adorned with pandan leaves.

Some research results related to fragrant pandan leaves include, in the ethanol extract of fragrant pandan there are terpenoid compounds, steroids are found in the ethyl acetate fraction, the hexane fraction only contains steroid and phenolic compounds. The ethyl acetate fraction of the ethanol extract of pandan leaves has the potential as a source of natural antioxidants (Suryani et al., 2017). Phytochemical screening tests of the methanol extract of fragrant pandan leaves (*Pandanus amaryllifolius* Roxb) contain flavonoid compounds, saponins, tannins, triterpenoids, alkaloids, glycosides and essential oils (Rahmasiahi et al., 2023). According to Suherlan (2023), the benefits of fragrant pandan for the body as a body detoxifier, preventing dandruff, relieving joint pain, helping to increase body immunity, reducing the risk of cancer, blackening hair, maintaining nerve health, maintaining heart health.



Figure 11. Fragrant pandan plant

Butterfly Pea Flower (*Clitoria ternatea* L)

The butterfly pea plant is a climbing plant with purplish-blue flowers that can be used as an ornamental plant in the yard. The people of Aceh Besar use butterfly pea flowers as a medicine for cholesterol and diabetes mellitus (DM). They consume the flowers by steeping them in hot or warm water until the purplish-blue color emerges. The butterfly pea drink can be drunk at any time and has no side effects. Due to the extraordinary benefits of butterfly pea flowers, we can now find butterfly pea drinks everywhere, such as at celebrations, cafes, and street vendors.

According to Nuramdani (2020), butterfly pea flowers contain tannins, phlobatannin, saponins, triterpenoids, phenols, flavonoids, alkaloids, anthraquinones, anthocyanins, flavonols, glycosides, and steroids which are useful in improving the immune system, increasing body metabolism, anti-aging, anti-inflammatory, lowering high blood pressure, controlling blood sugar, preventing insomnia, healthy skin, healthy eyes, reducing fat that causes disease, healthy heart, healthy brain. The results of research by Cahyaningsih et al (2019), butterfly pea flowers have chemical compound components including alkaloids, anthraquinones, anthocyanins, phenols, flavonoids, flavonol glycosides, cardiac glycosides, carbohydrates, essential oils, proteins, saponins, stigmast-4-ene-3, 6-dione, steroids, tannins and triterpenoids.



Figure 12. Butterfly flower plant

Green grass jelly leaves (*Premna oblongifolia*)

Interviews with the people of Aceh Besar revealed that they use green grass jelly leaves to reduce fever, nausea, and high blood pressure. They process them by boiling or crushing them to extract the leaves, which can be consumed directly or made into jelly or grass jelly. This refreshing beverage can be consumed at any time without side effects and offers numerous benefits.

Green grass jelly leaves contain carbohydrates, fats, proteins, chlorophyll, and other compounds such as polyphenols, flavonoids, as well as minerals and vitamins including calcium, phosphorus, vitamin A, and vitamin B. The polyphenol and flavonoid content in green grass jelly leaves functions as an antioxidant. Flavonoid compounds have sugar bonds called aglycones that bind to various sugars and are very easily hydrolyzed or easily released from their sugar groups. Flavonoids are antioxidants that have the potential to prevent free radicals. Green grass jelly contains bioactive components that kill tumor cells and ward off dangerous compounds that trigger tumors, namely flavonoid compounds (Santoso, 2017).

The benefits of green grass jelly include its use in treating various ailments, such as gastritis and gastric ulcers. The active compounds found in green grass jelly leaves include flavonoids, saponins, polyphenols, tannins, alkaloids, minerals, vitamins, and pectin fiber. These active substances can protect the gastric mucosa from damage caused by increased HCl concentrations (Islamiah and Sukohar, 2017).



Figure 13. Green grass jelly plant

Bidara Leaf (*Ziziphus mauritiana* L)

Bidara leaves are renowned for their extraordinary properties in treating various ailments. The people of Aceh Besar use bidara leaves to treat headaches, lower blood sugar levels, purify themselves after childbirth, and expel spirits. To treat headaches and lower blood sugar levels, they consume bidara leaves by boiling them and drinking them regularly every day. To purify themselves and expel spirits, bidara leaves are kneaded in water and poured over the entire body. Bidara leaves contain alkaloids, triterpenoids, saponins, flavonoids, and tannins (Agustin, 2023).

Bidara leaves have extensive biological activities, namely as an antioxidant capable of neutralizing and preventing damage caused by free radicals, as an anticancer can be a receptor for anti-cancer drugs that can inhibit the growth of cancer cells, as an antibacterial can inhibit the growth of various bacteria such as *S. aureus*, *E. coli*, and *P. Acnes*, as an antidiabetic can inhibit the activity of the enzyme α -glucosidase thereby preventing the occurrence of excessive increases in glucose levels, while its activity as an antidiarrheal can shrink the pores and intestinal mucous membranes so that water cannot be absorbed by the intestines in excess (Ardinimia et al., 2023).

In traditional medicine, the bidara plant is commonly used as an antidiabetic, sedative, bronchitis, and antidiarrheal by the community. Bidara is rich in polyphenols, alkaloids, flavonoids, tannins, cyclopeptide saponins, dammarane saponins, vitamins a, c and e, jujubosid b, jujubogenin glycosides, jujubasaponin iv, flavonol glycosides, diglucosylphloretin, minerals, amino acids, and polyunsaturated fatty acids. These compounds have antimicrobial properties, pain reliever, wound healer, treats gastric ulcers anti-inflammatory, hypoglycemic (controls blood sugar), antioxidant, and immunomodulatory effects (stimulates the body's immune system) (Maulana, 2023).



Figure 14. Jujube plant

Chrysanthemum plant (*Chrysanthemum morifolium*)

The people of Greater Aceh Some people use seruni leaves as a remedy for stomach aches and colds. They crush the leaves and rub them on the affected area. People often call this seruni plant "bunga dung ayam" (chicken droppings flower). According to IESPA (2025), seruni leaves contain flavonoids, terpenoids, and other phenolic compounds.

The flowers of the chrysanthemum plant (*Chrysanthemum morifolium*) can be made into tea by drying them, then soaking them in hot water, producing a drink with a distinctive aroma and soft taste, often slightly sweet. Seruni tea contains flavonoid and terpenoid compounds which show anti-inflammatory activity, rich in antioxidants such as apigenin, luteolin, and chlorogenic acid, improves eyesight and relieves tension (beta-carotene, lutein, and zeaxanthin), reduces fever, detoxifies the liver, improves blood circulation, lowers blood pressure, reduces cholesterol levels, has a relaxing effect and reduces stress, improves sleep quality, skin health, relieves cold and flu symptoms, supports digestion, potential to prevent

osteoporosis, antimicrobial activity, potential anticancer, reduces pain, respiratory health, regulates blood sugar, improves immunity, eliminates body odor/breath, improves cognitive function, reduces PMS symptoms, protects against UV damage, reduces allergies, heart health, potential to help with weight loss, source of important minerals such as potassium, calcium, and magnesium (Maharani, 2025).



Figure 15. Seruni plant

Henna Leaves (*Lawsonia inermis* L.)

Henna leaves are also known as inai leaves. In Aceh, henna leaves are commonly used to decorate the nails and hands of women preparing for weddings. They are also used as head coverings for funerals. Furthermore, the people of Greater Aceh also use henna leaves as a traditional medicine to treat stomach ulcers and stomach ailments, by growing the leaves and drinking the water. According to Trubus, henna leaves are beneficial not only for coloring nails, hair, and skin, but also for treating stomach aches, nausea, abdominal pain, bloating, and acid reflux (Trubus.id, 2019).

Henna leaves (*Lawsonia inermis* L.) contain alkaloids and saponins in small amounts. Flavonoids, tannins, and polyphenols in large amounts, the manufacture of antifungal compounds can cure nail fungus (Fauznah et al., 2019). Ethanol extract of henna leaves (*Lawsonia inermis* L.) contains flavonoids at Rf values of 0.10, 0.30 and 0.70 and alkaloids at Rf values of 0.85 which have antibacterial activity against four test bacteria, namely *Bacillus subtilis*, *Escherichia coli*, *Salmonella typhi*, and *Vibrio cholerae* and has antioxidant activity at Rf value 0.70 (Herwin et al., 2022). Henna plants are effective in inhibiting bacterial growth with an inhibition zone of 26.1 mm, also have activity as an antioxidant with an IC50 effectiveness of 4.8 µg / ml. (Anggraeni and Kustiawan, 2023).



Figure 16. Henna plant

Soursop plant (*Annona muricata* L)

The people of Aceh Besar use soursop plants to treat back pain and gout. They use soursop fruit to treat gout, either eaten raw or juiced, while the leaves are boiled and drunk to treat back pain. Nowadays, we often find soursop juice vendors in cafes and roadside juice stalls. Research shows that soursop leaves (*Annona muricata* L.) are effective in lowering blood sugar levels (Fadlilah et al., 2020). Boiled soursop leaves are also effective in lowering blood sugar levels (Syamson and Fakta, 2021).

Herbal therapy with soursop leaves can reduce joint pain in gout sufferers due to the presence of tannin, resin, and crystallizable magostine, these compounds function as strong analgesics (pain relievers) and act as antioxidants. Antioxidant properties can reduce the formation of uric acid by inhibiting the production of the xanthine oxidase enzyme (Fatriyadi and Irfa, 2016). Acetogenins compounds in soursop leaves are useful for killing various types of cancer cells. Ethanol extract of soursop seeds can inhibit the growth of several mammalian cancer cells (T47D, HeLa, WiDr, and Raji) in vitro using the MTT assay method with high inhibitory potential against cervical cancer cells (Nafi'ah and Kurniawati).

Soursop leaf extract (*Annona muricata* L.) contains active compounds such as alkaloids, tannins, saponins, steroids, and flavonoids, which can inhibit the growth of pathogenic bacteria and have anti-inflammatory and antibacterial properties (Purnamasari, 2021). *Annona muricata* L. contains a bioactive compound called acetogenin. Acetogenin is a secondary metabolite from Annonaceae, synthesized through a reaction between acetic acid and a polysaccharide derivative with a long chain of 35-39 carbon atoms in fatty acids. FTIR analysis shows the presence of functional groups such as lactone, THF, hydroxyl, and aliphatic chains, indicating the presence of acetogenin (Siswarni et al., 2016).



Figure 17. Soursop plant

Bay Leaf (*Syzygium polyanthum*)

Acehnese people generally use bay leaves as a flavoring in cooking. It turns out that besides adding aroma to food, bay leaves also offer significant benefits to the body. Interviews with the people of Greater Aceh revealed that they also use bay leaves as a traditional medicine to treat various ailments, such as numbness, gout, and stomach ulcers. Boil the bay leaves until the water reduces to about one cup. This bay leaf drink can also be mixed with other spices such as lemongrass, ginger, turmeric, and cinnamon bark.

Flavonoids in bay leaves play a role in lowering blood pressure by stimulating bile secretion, acting as antioxidants against free radicals, inhibiting the enzyme xanthine oxidase, and helping lower uric acid levels. Saponins and alkaloids help prevent fat absorption and increase urinary excretion, thus supporting cholesterol management. Tannins function as astringents and have antibacterial properties (Wahyudi et al., 2024).

Bay leaves (*Syzygium polyanthum*) contain secondary metabolites such as flavonoids, saponins, alkaloids, essential oils, and tannins. Flavonoids act as antihypertensives, anti-inflammatory agents, antioxidants, and antimicrobials for hypercholesterolemia and gout. Tannins have antihypertensive, antimicrobial, and antidiabetic effects. Saponins play a role in the treatment of hypercholesterolemia and act as antimicrobials. Essential oils act as analgesics (Haryanto et al., 2023).



Figure 18. Bay leaf plant

4. Conclusion

Medicinal plants that are used by the people of Aceh Besar, some of them are plants intentionally planted in yards, while others are wild plants that grow naturally. Traditional medicinal plants are processed by boiling, crushing, applying/sticking, brewing, grinding, crushing, and some are eaten directly. The active compounds contained in traditional medicinal plants are very beneficial for health. Compounds that play an active role in medicinal plants include flavonoids, saponins, alkaloids, tannins, triterpenoids, proteins, formic acid, fats, iron, vitamins, carbohydrates, potassium citrate, polyphenols, essential oils, carotenoids, steroids, phenolics, quinones, coumarins, glycosides, gallic acid, resin, red pigment, benzoic acid, calcium oxalate, plumbagin, lumbago, tannin, xeronine, proxeronine, ascorbic acid, linoleic acid, caprylic acid, phosphorus, palmitic acid, myristicin, cineole, pirokatechin, stigmast- 4-ene- 3, 6- dione, anthraquinone, anthocyanin, chlorophyll, cyclopeptide saponins, dammarane saponins, jujuboside b, jujubogenin glycosides, jujubasaponin IV, diglucosylphloretin, minerals, amino acids, polyunsaturated fatty acids, apigenin, luteolin, and chlorogenic acid, matabeta-carotene, lutein, zeaxanthin and crystallizable magostine.

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