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Quality Analysis of Leaf and Stem Extracts of the *Mikania micrantha*

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Abstract

Mikania micrantha (Sembung Rambat) is known in traditional medicine because it contains various bioactive compounds that have the potential as bioactive agents for pharmaceutical products and functional foods. The purpose of this study was to determine the quality of Mikania micrantha leaf and stem extracts obtained from Watualang Village, Ngawi. This study used an experimental research type, which included specific quality parameter tests, namely organoleptic tests and phytochemical screening, as well as non-specific quality parameter tests, namely water content and ash content. The results obtained, the yield of Mikania micrantha leaf and stem extracts were 14.32% and 13.12%, respectively. The specific quality parameters of Mikania micrantha extract, organoleptic test in the form of a thick green extract with a distinctive odor of the extract. Phytochemical screening, Mikania micrantha leaf and stem extracts contain phenol, flavonoid, steroid and sesquiterpene compounds. Non-specific quality parameters of Mikania micrantha extract include water content and ash content. The water content obtained in the leaf and stem extracts of Mikania micrantha were 9% and 8.45%, respectively. The ash content of the leaf and stem extracts of Mikania micrantha were 13.17% and 10.67%, respectively. The specific and non-specific quality parameters of the methanol extract of Mikania micrantha leaves and stems obtained from Watualang Village, Ngawi, have met the extract quality requirements.

Keywords: Extract, Mikania micrantha, organoleptic, phytochemical, water content, ash content

Introduction

Interest in secondary plant metabolites continues to increase (Nurgroho, 2017). This is due to the need for affordable and sustainable bioactive ingredients (BPOM RI, 2023), both for the development of pharmaceutical preparations such as herbal medicines (Jamilatun, Purnamasari, et

al., 2024), cosmetics (Jamilatun, Utami, et al., 2025), (Jamilatun, Lukito, & Rayhanissa, 2025), and for functional food applications (Jamilatun & Lukito, 2022), (Jamilatun, 2025). This demand is also accompanied by public awareness of the importance of natural ingredients with minimal side effects (Jamilatun, Lukito, Amartya, et al., 2025).

One plant with great potential as a source of natural bioactives is *Mikania micrantha*, also known as sembung rambat (Andriani, 2023) (Sumantri et al., 2020). This plant is a tropical weed species from the Asteraceae family that is widespread in Indonesia. Although considered an invasive plant, *Mikania micrantha* has been recognized in traditional medicine due to its potential to contain various bioactive compounds with therapeutic properties (Da Silva et al., 2018).

Pharmacognostic studies have shown that this plant contains active compounds such as flavonoids, tannins, saponins, and phenolic compounds that play a role in various activities (Da Silva et al., 2018). This content provides a strong scientific basis for the use of this plant as a phytopharmaceutical raw material. The pharmacological potential of the *Mikania micrantha* plant includes antimicrobial, anti-inflammatory, and antioxidant activities (Bengal, 2023).

The manufacture of herbal preparations or functional foods requires high-quality raw materials. The quality of plant extracts can be influenced by geographic factors and the environmental conditions in which the plants grow (Ren et al., 2023). Watualang Village in Ngawi Regency has unique agro-climatic conditions, so *Mikania micrantha* grown there may have a different phytochemical profile than plants from other locations. However, to date, there has been no research on the quality of *Mikania micrantha* extracts from Watualang Village, particularly from the leaves and stems, as natural bioactive ingredients.

Based on the description above, research was conducted to analyze the quality of *Mikania micrantha* leaf and stem extracts from Watualang Village, Ngawi, to determine the quality of *Mikania micrantha* leaf and stem extracts. The quality of the analyzed extracts consisted of specific quality parameters, including organoleptic and phytochemical tests, as well as non-specific quality parameters, including water content and ash content.

Literature Review

The quality of natural ingredient extracts is a key factor that determines the success of their application (Andiva et al., 2023). The quality of the extract is determined by the consistency of the bioactive compound content and measurable biological activity (Jamilatun, Lukito, et al., 2023) Previous studies have shown that the correct extraction and formulation methods can maintain bioactivity, which is then successfully applied in food products (Jamilatun, Purnamasari, et al., 2024), cosmetics (Jamilatun, Rahmadianty, et al., 2023), (Jamilatun, Pratiwi, et al., 2024), (Jamilatun, Utami, et al., 2025), (Jamilatun, Lukito, & Prasetyo, 2025), (Jamilatun, Rusita, et al., 2025), (Jamilatun, Lukito, & Rayhanissa, 2025) and traditional medicines (Jamilatun, Kholisna, et al., 2024).

Good quality natural extracts, when formulated into several products, exhibit high bioactivity, related to their secondary metabolite content (Jamilatun, 2023). Bay leaf extract (*Syzygium polyanthum*) formulated in toner exhibits high antioxidant activity (Jamilatun, Lukito, & Zahra, 2025). Cinnamon extract (*Cinnamomum burmanni*) formulated in edible film exhibits high antioxidant activity (Jamilatun & Lukito, 2025). Therefore, extract quality testing must include specific and nonspecific parameters to ensure the effectiveness and safety of the final product.

Maerials and Methods

Materials

The materials used include Mikania micrantha leaves and stems, methanol (Merck), HCl (Merck), Mg powder, H_2SO_4 (Merck), $FeCl_3$ (Merck), Chloroform (Merck), anhydrous acetic acid (Merck), and Dragendorf reagent. The tools used include a grinder, an aluminum pan, and a mesh sieve. 60, beaker, dropper pipette, volume pipette, glass funnel, test tube, stirring rod, Erlenmeyer flask, knife, jar, porcelain cup, porcelain crucible, Whatman filter paper, measuring cup, petri dish, desiccator, oven, analytical balance (Labex), maceration equipment set, water bath (Equitron)

Preparation of Raw Materials

Mikania micrantha plants were obtained from Watualang Village, Ngawi District, Ngawi Regency, East Java. Raw materials were harvested or collected directly from the plants. The leaves used were dark green, and the stems were brownish-green (Bera et al., 2023). The next process was wet sorting, which involved sorting the harvest while the plants were still fresh, such as removing soil, removing damaged or caterpillar-eaten plant parts, and removing other unwanted plant material.

Plant Determination

Mikania micrantha plants obtained from Watualang Village, Ngawi District, Ngawi Regency, East Java, were determined at the Biology Laboratory of Ahmad Dahlan University, Yogyakarta.

Preparation of *Mikania micrantha* Leaf and Stem Simplisia

Two kilograms of *Mikania micrantha* leaves and stems were washed thoroughly under running water, drained, and then dried in an oven at 50°C for 20 hours. The dried leaves and stems were then ground into a powder using a grinder. The resulting powder was sieved using a 60-mesh sieve (Jamilatun, Lukito, & Prasetyo, 2025).

Preparation of Leaf and Stem Extracts of *Mikania micrantha*

The preparation of *Mikania micrantha* leaf and stem extract was carried out using the Ultrasonic Assisted Extraction (UAE) method (Firdausia et al., 2025), using methanol solvent with a ratio of (1:10). Each leaf and stem was weighed as much as 200 grams and added with 2,000 ml of solvent. After that, the extraction process was carried out at a frequency of 40 kHz with a temperature of 40 ℃ for 50 minutes. The extraction results were filtered using filter paper, then the filtrate was taken, and the residue was discarded. The obtained filtrate was concentrated using a water bath at a temperature of 50 ℃ until a thick extract was obtained. The yield (total extract content) was calculated using the following formula:

Yield (%) $\frac{Extract\ Weight}{Initial\ Weight\ of\ Simplex}$ x 100%

Quality Testing of *Mikania micrantha* Leaf and Stem Extract

1) Organoleptic

   The extract is observed simply using the five senses to describe the shape, color, smell and taste (Rusmin et al., 2020).

2) Water content

   Water content measurement was carried out using the gravimetric method by carefully weighing 1 g of extract in a previously weighed cup, then oven-dried at 105°C for 4 hours, then the sample was cooled in a desiccator for 10 minutes and weighed until an accurate or constant weight was obtained (Jamilatun, Purnamasari, et al., 2024). The formula for determining water content is as follows:

   Water content (%) = $\frac{b-(c-a)}{b}$ x 100%

   Explanation: a = weight of empty cup (g); b = initial weight of the simplex (g);

   c = weight of the cup and the simple substance after being oven-dried (g)

3) Total Ash Content

   Place 1 g of the extract into a heated and tared crucible, then mix evenly. Heat slowly until the charcoal is gone, then weigh. If this method cannot remove the charcoal, filter it through ash-free filter paper and add hot water. Place the residue and filter paper in the same crucible. Add the filtrate to the crucible, then evaporate and heat until the weight is constant, then weigh again (Rusmin et al., 2020). The formula for determining total ash content is as follows:

   Total Ash Content (%) $\frac{W2-W0}{W1-W0}$ x 100%

   Explanation: W0 = empty crucible weight (g); W1 = weight of crucible + sample (g);

W2 = crucible weight + heating result (g)

4) Phytochemical Testing

a. Phenol identification is carried out by dissolving 0.5 grams of extract in 2 ml of methanol, then adding 3 drops of 1% FeCl3. The formation of green, red, purple, blue, or black indicates the presence of phenolic compounds (Jamilatun, 2023).
b. Flavonoid identification is carried out by dissolving 0.5 grams of extract in 2 ml of methanol, then adding 2 mg of Mg powder and 1 ml of concentrated HCl, then shaking vigorously. The formation of a red, orange, or yellow color indicates the presence of flavonoid compounds (Jamilatun, 2023).
c. Terpenoid identification, carried out by dissolving 0.5 grams of extract in 2 ml of methanol, then adding Liebermann-Burchard reagent consisting of 2 ml of chloroform and 10 drops of acetic anhydride. Then, it was added with 3 drops of concentrated H2SO4. The formation of a brownish or purple ring indicates the presence of triterpenoid-type terpenoid compounds, while a greenish-blue ring indicates the presence of steroid-type terpenoid compounds (Rahardjo, 2016).
d. Sesquiterpene identification is carried out by dissolving a spatula tip of extract in 1 ml of petroleum ether, then evaporating it until a concentrated extract is obtained, then adding 2 ml of 10% vanillin reagent in sulfuric acid. If there is a color change from the initial brown to black, it indicates the presence of sesquiterpene compounds (Rahardjo, 2016).

Results an Discuussion

This study was conducted to determine the quality of leaf and stem extracts of *Mikania micrantha*, obtained from Watualang Village, Ngawi District, Ngawi Regency, East Java. Determination of the *Mikania micrantha* plant was carried out at the Biology Laboratory of Ahmad Dahlan University, Yogyakarta. Determination was carried out to determine the authenticity of the plant being studied to avoid errors in the plants used (Jamilatun, Lukito, & Zahra, 2025). The results of the determination of *Mikania micrantha* are presented in Table 1. The results of the determination state that the sample tested is a *Mikania micrantha* plant, which is included in the Asteraceae family.

Table 1. Results of Determination of *Mikania micrantha*

Plant Name	Determination Results
Sembung Rambat	1b-2b-3b-4b-12b-13b-17b-18b-19b-20b-21b-22b-23b-24b-25b-26b-27b-799a Asteraceae 1b-3a-4b-5a-6b-15b-16a-17b-18b Mikania Mikania cordata (Burm.f.) B. L. Robiason Sinonim: *Mikania micrantha* Kunth

The parts of the *Mikania micrantha* plant used are the leaves and stems. The plants obtained

were wet-sorted and washed. Two kilograms of leaves and stems were each dried for 20 hours in an oven at 50°C. This temperature was used to prevent the compounds contained in the plant from being damaged. The criteria for good dried simplicia are that when crushed, they rustle and turn into flakes or are easily broken.

The dried samples were then dry sorted, ground, and sieved using a 60-mesh sieve. The fineness of the powdered medicinal plants is a significant factor in the extraction process. The finer the powder, the higher the extract yield (Asworo & Widwiastuti, 2023). Meanwhile (Fonmboh et al., 2020), explained that very fine powdered medicinal plants (<180 µm) can complicate the filtration process and even cause damage and slime.

The extraction method used in this study was Ultrasonic Assisted Extraction (UAE) with methanol as the solvent. Methanol was chosen as the solvent for the extract because it is a universal solvent capable of dissolving almost all components, including nonpolar, semi-polar, and polar ones (Verdiana et al., 2018). The results of the extraction of *Mikania micrantha* leaves and stems are presented in Table 2.

Table 2. Yield of *Mikania micrantha* Leaf and Stem Extract

***Mikania micrantha* simplicia powder (g)**	**Weight of material (g)**	**Thick extract (g)**	**Yield (%)**
Leaf	200	28,6421	14,32%
Stem	200	26,2543	13,12%

The yield of Mikania micrantha leaf extract was 14.32%, and that of *Mikania micrantha* stem extract was 13.12%. Both yields meet the requirements (Kementerian Kesehatan RI, 2023) which is not less than 7.2%. The results of this study are higher compared to previous research (Hamida et al., 2023), which reported that the yield of thick extract of *Mikania micrantha* leaves was 13.05%. This can be influenced by the environmental conditions of the plant's habitat, such as the physical and chemical conditions of the soil, as well as the climate and weather (Hamida et al., 2023). The resulting yield indicates that the extract produced is higher, so there are more nutritious substances contained in the plant. Based on the results obtained, the yield of leaf extract is higher than that of stem extract. This occurs because the bioactive compounds contained in the leaf extract are more than those in the stem extract. This is consistent with previous research, which stated that phenolic compounds are more abundant in leaves (Saputri et al., 2024). Leaf components such as trichomes, cell vacuoles, trichome organs, and chloroplasts are found in leaf cells. Furthermore, the leaf tissue structure is softer and more porous, making it easier for solvents to penetrate the tissue and dissolve the active ingredients.

Table 3. Organoleptic Test Results of *Mikania micrantha* Leaf and Stem Extract

Organoleptic Test	**Simplicia**		**Extract**	
	Leaf	**Stem**	**Leaf**	**Stem**
Shape	Fine powder	Fine powder	Thick	Thick
Color	Dark green	Brownish green	Green	Green

Organoleptic Test	Simplicia		Extract	
	Leaf	Stem	Leaf	Stem
Smell	Typical of herbal medicine	Typical of herbal medicine	Typical extract	Typical extract
Taste	Spicy and slightly bitter	Spicy and slightly bitter	-	-

Organoleptic testing included testing for shape, color, odor, and taste. The test results can be seen in Table 3. The results of the organoleptic test of the simplex and leaf and stem extracts of *Mikania micrantha* were in the form of a fine green powder derived from chloroplasts containing chlorophyll (green leaf substance). Most chlorophyll is found in the leaves, but other parts of the plant, such as the stems, also contain chlorophyll in limited amounts (Dharmadewi, 2020). *Mikania micrantha* contains borneol, cineole, limonene, and dimethyl ether phloroacetophenone. These compounds are responsible for the distinctive odor found in *Mikania micrantha* and its slightly spicy taste (Juwita et al., 2023). The aroma of the simplex depends on the characteristics of the plant. Meanwhile, the bitter taste comes from phenolic compounds, flavonoids, and tannins. (Sampepana et al., 2020).

Table 4. Phytochemical Screening Results of *Mikania micrantha* Leaf and Stem Extract

Phytochemical Test	Leaf Extract		Stem Extract	
	Results	Interpretation	Results	Interpretation
Phenol	Dark green	+ (positive)	Dark Green	+ (positive)
Flavonoids	Orange red	+ (positive)	Orange	+ (positive)
Terpenoids	Dark green	+ (positive) steroid	Dark Green	+ (positive) steroid
Sesquiterpenes	Black	+ (positive)	Black	+ (positive)

The results of phytochemical screening of *Mikania micrantha* leaf and stem extracts can be seen in Table 4. The results obtained were that both contained phenolic compounds, flavonoids, steroids, and sesquiterpenes. These results are consistent with research reporting that *Mikania micrantha* leaves contain flavonoids (Sampepana et al., 2020). This is in contrast to research (Matawali et al., 2016), which reported that the tested extract of *Mikania micrantha* leaves from Sabah, Malaysia, showed no detectable flavonoid compounds. This indicates that differences in the phytochemical compound content of an extract can be influenced by the environmental conditions of the plant's growing habitat (Hamida et al., 2023).

Table 5. Results of Water and Ash Content Tests of *Mikania micrantha* Leaf and Stem Extract

Mikania micrantha Extract	Water Content (%)	Total Ash Content (%)
Leaf	9±0,71	13,17±0,22
Stem	8,45±0,40	10,67±0,75

The water content test was conducted using the gravimetric method. The results of the water content test for the leaf and stem extracts of *Mikania micrantha* can be seen in Table 5. The

analysis results obtained for the leaf extract sample were 9% ± 0.71, and for the stem extract were 8.45% ± 0.40. This difference can be caused by the function of the leaves as a place for photosynthesis and as a place to store water (Putu Sri Dia et al., 2015). Good requirements for water content in the form of thick extracts are ≤ 10% (Kementerian Kesehatan RI, 2023). Therefore, the water content in the leaf and stem extracts of *Mikania micrantha* meets the applicable quality standards. Determination of water content is also related to the purity of the extract. Water content that is too high (> 10%) causes microbial growth, which will reduce the stability of the extract. The water content obtained is higher when compared to previous research, namely, research (Purba, 2024), which reported that the water content of *Mikania micrantha* leaf extract was 5.99%. This could be due to differences in temperature and the length of the drying process in the oven. This is in line with research by Hathiqah (2018), which states that the higher the drying temperature of the leaves, the lower the resulting water content.

The ash content test was conducted using the gravimetric method. The results of the ash content test for the leaf and stem extracts of *Mikania micrantha* can be seen in Table 5. The results of the ash content analysis obtained in the leaf extract sample were 13.17%, and in the stem extract, 10.67%. This difference is due to the leaves having a larger surface area and being directly exposed to the environment, making it easier to absorb minerals or inorganic substances. Based on (Kementerian Kesehatan RI, 2023), it is stated that the requirement for total ash content is ≤ 16.6%, so that the ash content obtained in the leaf and stem extracts of *Mikania micrantha* has met the applicable quality standards. The total ash content obtained is higher when compared to research (Purba, 2024), which is 10.36%. The higher the ash content value, the more inorganic materials are contained in the product. High ash content in the extract can cause toxic effects on the body and affect the quality of the extract. High ash content can be caused by the content of minerals and heavy metals in the raw material of the extract (Ernawati, 2024).

Conclusion

The yield of *Mikania micrantha* leaf and stem extracts was 14.32% and 13.12%, respectively. Specific quality parameters of *Mikania micrantha* extract included organoleptic tests in the form of a thick green extract with a distinctive odor. Phytochemical screening showed that the leaf and stem extracts contained phenol, flavonoid, steroid, and sesquiterpene compounds. Non-specific quality parameters of *Mikania micrantha* extract included water content and ash content. The water content obtained in the *Mikania micrantha* leaf and stem extracts was 9% and 8.45%, respectively. The ash content of the *Mikania micrantha* leaf and stem extracts was 13.17% and 10.67%, respectively. Specific and non-specific quality parameters of the methanol extract of *Mikania micrantha* leaves and stems obtained from Watualang Village, Ngawi, met the extract quality requirements.

Reference

Andiva, H. A., Jamilatun, M., & Lukito, P. I. (2023). Formulasi dan Evaluasi Sabun Cair Kombinasi Ekstrak Kulit Nanas Madu (Ananas comosus (L) Merr .) dan Gel Lidah Buaya (Aloe vera (L) Webb .). *Jurnal Jamu Kusuma*, *3*(1), 35–41. https://doi.org/10.37341/jurnaljamukusuma.v3i1.55

Andriani, L. (2023). Pengelolaan Sumber Daya Alam di Indonesia: Potensi dan Kebijakan Pemerintah untuk Dukungan Produk Bahan Alam Dengan Daya Anti Bakteri. *Jurnal Khazanah Intelektual*, *7*(2). https://doi.org/10.37250/khazanah.v7i2.197

Asworo, R. Y., & Widwiastuti, H. (2023). Pengaruh Ukuran Serbuk Simplisia dan Waktu Maserasi terhadap Aktivitas Antioksidan Ekstrak Kulit Sirsak. *Indonesian Journal of Pharmaceutical Education*, *3*(2). https://doi.org/10.37311/ijpe.v3i2.19906

Bengal, W. (2023). *a Comparative Evaluation of Antioxidant and Antibacterial Potential*. *14*(8), 4003–4008. https://doi.org/10.13040/IJPSR.0975-8232.14(8).4003-08

Bera, A., Maiti, S., & Banerjee, N. (2023). A comparative evaluation of antioxidant and antibacterial potential of leaves & flowers of Mikania micrantha Kunth from Paschim Medinipur, West Bengal, India. *International Journal of Pharmaceutical Sciences and Research*, *14*(8).

BPOM RI. (2023). *Pedoman Penyiapan Bahan Baku Obat Bahan Alam Berbasis Ekstrak / Fraksi*. Badan Pengawas Obat dan Makanan RI. https://bit.ly/Masukan-PedomanEkstraksi2023

Da Silva, A. S. B., Owiti, A. O., & Barbosa, W. L. R. (2018). Pharmacology of Mikania genus: A systematic review. In *Pharmacognosy Reviews* (Vol. 12, Issue 24). https://doi.org/10.4103/phrev.phrev_10_18

Dharmadewi, I. M. (2020). Analisis Kandungan Klorofil Pada Beberapa Jenis Sayuran HijauSebagai Alternatif Bahan Dasar Food Suplement. *Jurnal Emasains*, *9*(2).

Ernawati, E. E. (2024). Standardisasi Ekstrak Buah Ceremai (Phyllanthus Acidus L. Skeels) dan Aktivitas Inhibisi Enzim Elastase. *Jurnal Kartika Kimia*, *6*(2), 145–155. https://doi.org/10.26874/jkk.v6i2.225

Firdausia, R. S., Pratama, N. P., Kurniawati, E., Ervany, I., Wibisono, D. I., Rikhaturhohmah, R., & Ardianto, L. S. (2025). Optimasi Waktu Ekstraksi Dengan Metode Ultrasound Assisted Extraction (UAE) Terhadap Kandungan Senyawa Flavonoid dan Fenolik Daun Kayu Bulan (Pisonia alba Span.). *Jurnal Mandala Pharmacon Indonesia*, *11*(1), 274–280. https://doi.org/10.35311/jmpi.v11i1.715

Fonmboh, D. J., Abah, E. R., Fokunang, T. E., Herve, B., Teke, G. N., Rose, N. M., Borgia, N. N., Fokunang, L. B., Andrew, B. N., Kaba, N., Bathelemy, N., & Ntungwen, F. C. (2020). An Overview of Methods of Extraction, Isolation and Characterization of Natural Medicinal Plant Products in Improved Traditional Medicine Research. *Asian Journal of Research in Medical and Pharmaceutical Sciences*. https://doi.org/10.9734/ajrimps/2020/v9i230152

Hamida, F., Ananda Agustin, A., & Siti Djuhariyah, Y. (2023). Aktivitas Antifungi Ekstrak Daun Sembung Rambat (*Mikania micrantha* Kunth.) Asal Cileungsi, Bogor Terhadap

Trichophyton mentagrophytes. *Sainstech Farma: Jurnal Ilmu Kefarmasian*, *16*(2), 59–66.

Jamilatun, M. (2023). Isolation and Phytochemical Testing of Endophytic Fungi from Imperata cylindrica (L .) Beauv plants . *International Journal of Basic and Applied Science*, *12*(2), 62–71. https://doi.org/https://doi.org/10.35335/ijobas.v12i2.255

Jamilatun, M. (2025). *Pengantar Mikrobiologi Farmasi dan Pangan*. Tahta Media Group.

Jamilatun, M., Kholisna, M., & Yulianto, S. (2024). Physical Quality and Antifungal Activity of Kalanchoe Pinnata Leaf Extract Ointment against Candida albicans. *Quantum Journal of Medical and Health Sciences*, *3*(5), 18–26. https://www.qjmhs.com/index.php/qjmhs/article/view/111

Jamilatun, M., & Lukito, P. I. (2022). Pendidikan Kesehatan tentang Pangan Fungsional Olahan Buah Naga Merah kepada Ibu-Ibu PKK di Desa Tegalyoso Klaten Selatan. *Joong-Ki : Jurnal Pengabdian Masyarakat*, *1*(3), 343–348. https://doi.org/https://doi.org/10.56799/joongki.v1i3.724

Jamilatun, M., & Lukito, P. I. (2025). Formulation of Edible Film Mucoadhesive Cinnamon Extract (Cinnamomum burmanni). *Sasambo Journal of Pharmacy*, *6*(2), 86–93. https://doi.org/10.29303/sjp.v6i2.579

Jamilatun, M., Lukito, P. I., Amartya, V. D., Jannah, M., & Dewi, F. A. K. S. (2025). Edukasi Pemanfaatan Bahan Alam Sebagai Bahan Obat Tradisional Di Desa Satriyan Juwiring Klaten. *RENATA: Jurnal Pengabdian Masyarakat Kita Semua*, *3*(2). https://doi.org/https://doi.org/10.61124/1.renata.164

Jamilatun, M., Lukito, P. I., & Prasetyo, K. L. (2025). Antioxidant Activity of Mask Combination of Broccoli And Black Glutinous Rice. *Quantum Journal of Medical and Health Sciences*, *4*(1), 52–60. https://www.qjmhs.com/index.php/qjmhs/article/view/134

Jamilatun, M., Lukito, P. I., & Rayhanissa, R. A. D. (2025). Antioxidant Activity of Peel-Off Gel Mask of Aloe Vera and Strawberry. *Quantum Journal of Medical and Health Sciences (QJMHS)*, *4*(2), 70–77. https://doi.org/https://doi.org/10.55197/qjmhs.v4i2.154

Jamilatun, M., Lukito, P. I., & Saputri, M. A. (2023). Physical Quality and Sun Protection Factor Value of The Sunscreen Lotion Extract of Carrot (Daucus carota L .). *ULIL ALBAB : Jurnal Ilmiah Multidisiplin*, *2*(9), 4258–4262. https://doi.org/https://doi.org/10.56799/jim.v2i9.2074

Jamilatun, M., Lukito, P. I., & Zahra, M. A. (2025). Antioxidant Activity of Bay (Syzygium polyanthum [Wight] Walp) Leaf Extract Toner. *Journal of Health Science and Medical Therapy*, *3*(03), 255–264. https://doi.org/10.59653/jhsmt.v3i03.1853

Jamilatun, M., Pratiwi, M. D., & Yulianto, S. (2024). *Formulation and Evaluation of Face Mask Gel Peel Off Combination of Avocado Leaf Extract (Perssea Americana Mill) and Jicama (Pachyrrhuzul Erosus L .)*. *3*(8), 1739–1748. https://doi.org/https://doi.org/10.55927/fjst.v3i8.10580

Jamilatun, M., Purnamasari, T., & Tolkhah, R. (2024). Jelly Candy Production With Variations of Broccoli (Brassica oleracea var. italica) and Red Ginger (Zingiber officinale var. rubrum Theilade) 1. *Jurnal Jamu Kusuma*, *4*(1), 14–18.

https://doi.org/https://doi.org/10.37341/jurnaljamukusuma.v4i1.73

Jamilatun, M., Rahmadianty, H. A., & Lukito, P. I. (2023). Quality Analysis of Cream Scrub Combination of Moringa (Moringa oleifera) Leaf Extract and White Glutinous Rice (Oryza sativa glutinosa) Starch. *International Journal of Multidisciplinary Approach Research and Science*, *1*(03), 302–311. https://doi.org/https://doi.org/10.59653/ijmars.v1i03.167

Jamilatun, M., Rusita, Y. D., & Sari, E. P. (2025). Physical Qualities and Antifungal Activity of Cucumber (Cucumis sativus) Extract Shampoo against Candida albicans. *PHARMADEMICA: Jurnal Kefarmasian Dan Gizi*, *4*(2), 65–74. https://doi.org/https://doi.org/10.54445/pharmademica.v4i2.58

Jamilatun, M., Utami, E. D., & Tolkhah, R. (2025). Antifungal Activity of Hair Dyes Gel from Henna Leaves and Clove Flower. *Indonesian Journal of Pharmaceutical (e-Journal)*, *5*(1), 1–11. https://doi.org/10.37311/ijpe.v5i1.27246

Juwita, E., Hafni, S., Siregar, R. A., Hutasuhut, U., & Purnamasari, E. D. (2023). Manfaat Air Daun Sembung Rambat Sebagai Obat Herbal Alami Dalam Menjaga Kesehatan Masyarakat. *Jurnal ADAM : Jurnal Pengabdian Masyarakat*, *2*(2), 335–340. https://doi.org/10.37081/adam.v2i2.1436

Kementerian Kesehatan RI. (2023). Farmakope Herbal Indonesia Edisi II Tahun 2017. *Pills and the Public Purse*.

Matawali, A., Eng How, S., Jualang Azlan, G., Ping Chin, L., Siew Eng, H., & Azlan Gansau, J. (2016). Antibacterial and Phytochemical Investigations of Mikania micrantha H.B.K. (Asteraceae) From Sabah, Malaysia. In *Transactions on Science and Technology* (Vol. 3, Issue 2).

Nurgroho, A. (2017). Buku Ajar: Teknologi Bahan Alam. In *Lambung Mangkurat University Press* (Issue January 2017).

Purba, V. V. (2024). *Bioautografi Ekstrak Etanol Daun Sembung Rambat (Mikania Micrantha Kunth) terhadap Bakteri Staphylococcus Aureus* [Universitas Sumatera Utara, Medan]. https://repositori.usu.ac.id/handle/123456789/96171

Putu Sri Dia, S., Nurjanah, N., & Mardiono Jacoeb, A. (2015). Komposisi Kimia dan Aktivitas Antioksidan Akar, Kulit Batang, dan Daun Lindur. *Jurnal Pengolahan Hasil Perikanan Indonesia*, *18*(2).

Rahardjo, S. S. (2016). Review Tanaman Sembung [Blumea balsamifera (L.)]. *Proceeding of Mulawarman Pharmaceuticals Conferences*, *3*. https://doi.org/10.25026/mpc.v3i2.84

Ren, X., Zhang, G., Jin, M., Wan, F., Day, M. D., Qian, W., & Liu, B. (2023). Metabolomics and Transcriptomics Reveal the Response Mechanisms of Mikania micrantha to Puccinia spegazzinii Infection. *Microorganisms*, *11*(3), 1–15. https://doi.org/10.3390/microorganisms11030678

Rusmin, Dg Pine, At., & Monika Uneputty, M. (2020). Standardisasi Mutu Fisik Ekstrak Etanol Daun Pare Hijau (Momordica carantia L.). *Journal.Yamasi.Ac.Id*, *4*(1).

Sampepana, E., Fitriani, S., Apriadi, R., & Rahmadi, A. (2020). Kandungan Fenolik, Flavonoid,

Tanin dan Aktivitas Antioksidan Produk UKM Teh Tiwai di Kabupaten Kutai Kartanegara secara Spektrofotometer Uv-Vis. *Prosiding Seminar Nasional Pengabdian Kepada Masyarakat*, 119–130.

Saputri, M., Yulia, R., Febriani, Y., Ginting, E., Amara, S., Zulkhaira, Z., & Utami, I. P. (2024). Perbandingan Kadar Fenolik Total Air Rebusan dan Ekstrak Etanol Daun dan Batang Sawi Langit (Cyanthillium cinereum (L.) H.Rob). *Journal of Pharmaceutical and Health Research*, *5*(1), 1–8. https://doi.org/10.47065/jharma.v5i1.4578

Verdiana, M., Widarta, I. W. R., & Permana, I. D. G. M. (2018). Pengaruh Jenis Pelarut pada Ekstraksi Menggunakan Gelombang Ultrasonik terhadap Aktivitas Antioksidan Ekstrak Kulit Buah Lemon (Citrus limon (Linn.) Burm F.). *Jurnal Ilmu Dan Teknologi Pangan (ITEPA)*, *7*(4), 213. https://doi.org/10.24843/itepa.2018.v07.i04.p08