



Antioxidant Activity and Total Phenolic Content in Decoction and Infusion
Suruhan Herb (*Peperomia pellucida*)

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Article Info	ABSTRACT
Received: 20-05-2026 Revised: 18-06-2026 Accepted: 30-06-2026 *Corresponding author: Muhammad Sa’ad Email: muhammads@stikesnas.ac.id	Background: Suruhan herb (<i>Peperomia pellucida</i> (L.) Kunth) is a traditional medicinal plant with various pharmacological activities. One of these is its antioxidant activity due to its content of secondary metabolites such as phenols. Phenolic compounds have biological activity as natural antioxidants that can ward off free radicals that cause cell damage and various degenerative diseases. The suruhan herb is traditionally used by decoction or infusion, yet there is no specific research comparing the effectiveness of these two methods as antioxidants. Objective: This study aimed to determine the phytochemical content and determine which extraction method yields the highest total phenol content and antioxidant activity in decoction and infusion of suruhan herb using the DPPH method. Method: Fresh suruhan herb was processed into simplicia, extracted using decoction and infusion methods, and freeze-dried into a powder. Total phenol content was determined using UV-Vis spectrophotometry with gallic acid as the standard. The DPPH method was used to determine antioxidant activity, with vitamin C as a positive control. Results: The results showed that the boiled and brewed of suruhan herb contained phenols, flavonoids, alkaloids, saponins, and tannins. The highest yield was obtained with the decoction method at 56.4%, while the infusion method yielded 21.53%. The total phenol content of the decoction extract was 50.308±0.337 mg GAE/g, while the infusion was 44.649±0.079 mg GAE/g. The antioxidant activity test results showed that the decoction extract had an IC₅₀ value of 28.316 ppm, the infusion 33.942 ppm, and vitamin C, as a positive control, was 4.084 ppm. Conclusion: The antioxidant activity of the decoction extract and the infusion was categorized as very strong, with the decoction extract showing higher antioxidant activity, consistent with the results of total phenol measurements, which also showed higher levels in the decoction extract. Keywords: Antioxidant; Phenolic; Peperomia; Suruhan; Herbal

INTRODUCTION

The suruhan herb or Chinese betel (*Peperomia pellucida* (L.) Kunth) is a medicinal plant traditionally used by people to treat various health problems, including acne, boils, skin irritation, stomach aches, and kidney disease (Imansyah & Hamdayani, 2022). Various studies have shown that

suruhan herb has pharmacological activities such as antioxidant, antidiabetic, antibacterial, anti-inflammatory, antifungal, antihypercholesterolemia, and anticancer properties (Razoki et al., 2025). This therapeutic potential stems primarily from its secondary metabolites, particularly phenolic and flavonoid compounds, which possess strong antioxidant activity in reducing free radicals and lowering levels of

Reactive Oxygen Species (ROS) in the body (Pratiwi et al., 2021). Structurally, the hydroxyl group (-OH) in the aromatic ring of phenolic compounds acts as an effective hydrogen donor to break the chain of free radical reactions (Amin & Assafa, 2025).

Several previous studies have focused on the quantification of phenolic compounds from suruhan herb using various modern extraction methods. One such study by (Sa'ad et al., 2023) showed that a purified extract of suruhan herb produced a total phenol content of 16.653 ± 0.2159 mg GAE/g, slightly higher than the crude extract, which was 16.520 ± 0.1304 mg GAE/g. Meanwhile, (Hafidz et al., 2025) reported much higher levels in the concentrated extract, reaching 91.02 ± 0.12 mg GAE/g. Although quantification data based on organic extracts such as ethanol or methanol has been widely reported, the use of suruhan herb in the community is dominated by simple, water-based preparation methods, including boiling and brewing, due to practicality, tradition, and cost efficiency (Ahmed et al., 2026).

The effectiveness of polar compound extraction using water as a solvent is significantly influenced by preparation technique and heating duration. Previous research on ant nest herbal extracts showed that the brewing method yielded the highest total phenol content, 3.64 g GAE/100g, compared to the boiling method (3.37 g GAE/100g) and the ethanol extract (2.74 g GAE/100g) (Dhurhanian & Novianto, 2019). Conversely, research has shown that longer boiling times yield optimal phenol content compared to shorter ones (Sulaiman, 2019). The variability in results from these studies suggests that the mechanistic differences between boiling and brewing significantly impact the stability and final yield of phenolic compounds.

The phenolic compound content in an extract is directly correlated with antioxidant activity. The higher the phenol content, the higher the antioxidant activity (Tullah et al., 2023). Previous research reported that the ethanol extract of suruhan (*Peperomia pellucida* L.) showed very strong antioxidant activity (Yanti et al., 2023). However, to date, no study has directly compared the effectiveness of the decoction and infusion methods on the total phenolic content profile and antioxidant activity of suruhan (*Peperomia pellucida* L.) Kunth. This study aims to identify the presence of secondary metabolites, especially phenolics, while also determining which water-based extraction method is most effective and optimal among the two traditional methods. This research is expected to provide a scientific basis for the public in choosing the most efficient suruhan herb processing method to obtain maximum antioxidant benefits from both extraction methods.

METHODS

Materials

Materials: suruhan herb (*Peperomia pellucida* (L.) Kunth), distilled water, folin-ciocalteu reagent, gallic acid (Sigma Aldrich), sodium carbonate, 5% iodine reagent, FeCl_3 , 1% Pb acetate solution, 1% potassium dichromate solution, Magnesium powder, concentrated HCl, vitamin C, ethanol p.a, DPPH (Sigma Aldrich). Tools: blender (Philips), filter paper (Whatman), glassware (Pyrex), aluminum foil, dehydrator, vacuum rotary evaporator (IKA), waterbath (Mettler), oven (Mettler), analytical balance (Ohaus), micropipette (Thermo Scientific), UV-Vis Spectrophotometer (Shimadzu UV-1280), freeze dryer (Biobase).

Methods

Sample Preparation & Extraction

For the preparation of the herbal medicine, 3 kg of fresh suruhan herb (*Peperomia pellucida* (L.) Kunth) was separated from the dirt, washed thoroughly,

and chopped. Then, it was dried using a dehydrator at 50°C. It was ground using a blender and sieved using a 60 mesh.

Decoction extraction: 15 grams of suruhan herb powder was added to 150 ml of water (1:10), then heated for 15 minutes until boiling (100°C) over low heat, stirring occasionally, then filtered through filter paper. This was replicated three times (Lekal & Watuguly, 2017). **Infusion extraction:** 15 grams of suruhan herb powder was brewed with 150 ml of hot water (1:10), left for 15 minutes, stirring occasionally, then filtered through filter paper. This was replicated three times.

The liquid extract obtained from decoction and infusion is dried using the freeze-drying method until a powder form is obtained.

Phytochemical Screening

Alkaloids: 2 mL of each decoction and infusion sample was evaporated in a porcelain dish. The residue was dissolved in 5 mL of 2M HCl. The resulting solution was divided into three tubes. The first tube served as a blank. 3 drops of Dragendorff's reagent were added to the second tube, and 3 drops of Mayer's reagent were added to the third. A positive alkaloid test for Dragendorff's reagent will result in the formation of an orange precipitate, while a positive test for Mayer's reagent will result in a yellow precipitate. **Flavonoids:** 2 mL of the decoction and infusion samples were added to sufficient hot water, boiled for 5 minutes, and then filtered. 0.05 mg of Mg powder and 1 mL of concentrated HCl were added to the 5 mL filtrate, and the mixture was shaken vigorously. A positive flavonoid test is indicated by the formation of a red, yellow, or orange color. **Tannins:** A few drops of 10% iron(III) chloride solution were added to each 1 mL sample. A positive tannin test is indicated by the formation of a dark blue or greenish-black color. **Saponin:** Place 3 ml of sample in a test tube, add 10 ml of hot water, cool, shake vigorously for 10 seconds, and add 1 drop of 2 N HCl. A positive saponin test is indicated by the formation of a stable foam of 1-10 cm for at least 10 minutes. **Steroids and Terpenoids:** Add 10 drops of glacial acetic acid and 2 drops of concentrated

H₂SO₄ to 2 ml of sample. Shake gently and let stand for several minutes. A positive steroid test is indicated by a blue or green color, while triterpenoids produce a red or purple color (Depkes RI, 2022).

Qualitative Phenol Test

Iodine Test: Add 3 drops of 5% iodine reagent to 3 ml of sample. A positive phenol test is indicated by the formation of a temporary red color. **Lead Acetate Test:** Add 1 ml of 1% lead acetate reagent to 2 ml of sample. A positive phenol test is indicated by the formation of a white precipitate. **Potassium Dichromate (K₂Cr₂O₇) Test:** Add 3 drops of 1% potassium dichromate reagent to 2 ml of sample. A positive phenol compound is indicated by a color change to dark. **Iron (III) Chloride (FeCl₃) Test:** Add 3 drops of FeCl₃ solution to 2 ml of sample. A positive phenol compound is indicated by a color change from bluish-black to deep black.

Quantitative Phenol Test

Preparing a 7.5% sodium carbonate (Na₂CO₃) solution: Dissolve 7.5 g of Na₂CO₃ in 80 ml of distilled water, boil until dissolved. Cool, transfer to a 100 ml volumetric flask, add distilled water to the mark. Sonicate for 10 minutes. Let stand for 24 hours and filter. **Preparing a 10% Folin-Ciocalteu solution:** Add 1 ml of Folin-Ciocalteu solution to a 10 ml volumetric flask, add distilled water to the mark, and shake until homogeneous. **Preparation of 1,000 ppm gallic acid stock solution:** 10mg gallic acid in a 10 ml volumetric flask, add distilled water to the mark. Sonicate for 10 minutes. **Preparation of 30 ppm gallic acid stock solution:** 0.3 ml of 1,000 ppm gallic acid stock solution is put into a 10 ml volumetric flask and add distilled water to the mark, shake until homogeneous. **Determination of operating time:** 300 µl of 30 ppm gallic acid solution. Add 1.5 ml of 10% folin-ciocalteu, then shake until homogeneous. Let stand for 3 minutes then add 1.2 ml of 7.5% sodium carbonate and homogenize. Measure the absorbance with a visible light spectrophotometer at a wavelength of 765 nm, carried out in the time range between 0 and 60 minutes, using stable absorbance. **Determination of the**

maximum wavelength of gallic acid: 300 µl of gallic acid solution with a concentration of 30 ppm. Add 1.5 ml of 10% folin-ciocalteu, shake until homogeneous and then incubate for 3 minutes. Add 1.2 ml of 7.5% sodium carbonate and homogenize, the solution is allowed to stand for the operating time, then the absorbance is measured at a wavelength of 600-800nm. **Preparation of a standard curve of gallic acid:** A series of concentrations of 10 ppm; 20 ppm; 30 ppm; 40 ppm; 50 ppm is made from the stock solution of gallic acid. Each is taken 300 µl, then added 1.5 ml of 10% folin-ciocalteu and shaken until homogeneous, left for 3 minutes, added 1.2 ml of 7.5% sodium carbonate, homogenized and incubated according to the operating time. The absorbance is measured at the maximum wavelength obtained. **Total phenolic content test:** Each sample solution of 1,000 ppm decoction and infusion, 0.5 ml was pipetted and dissolved in a 5 ml volumetric flask with distilled water. Then, 300 µl was taken, 1.5 ml of 10% folin-ciocalteu was added, shaken until homogeneous, incubated for 3 minutes. Add 1.2 ml of 7.5% sodium carbonate, homogenize and let stand for the operating time. The absorbance was measured at the maximum wavelength obtained. Three replications were carried out to ensure the accuracy of the result (Sa'ad et al., 2023). The phenolic content was calculated by entering it into a linear regression, which was obtained from the calibration curve of the standard gallic acid solution, y is the absorbance and x is the concentration of the compound to be determined (Susiloningrum & Sari, 2021). Total phenolics were calculated using a linear regression equation from the previously measured gallic acid calibration curve.

Antioxidant Activity Analysis

DPPH Solution Preparation: Prepare a 1000 ppm DPPH solution by dissolving 10 mg of DPPH powder in ethanol p.a. in a 10 ml volumetric flask. Pipette 2.5 mL of the 1000 ppm DPPH solution into a 25 ml volumetric flask, then add ethanol p.a. to the mark to obtain a 100 ppm DPPH working standard. **Wavelength Determination:** Pipette 1.8 mL of the 100 ppm DPPH solution, add 3.2 mL of

ethanol p.a., let stand for 30 minutes, and read the absorbance at 400-600 nm. **Operating Time Determination:** Pipette 1.8 mL of the 100 ppm DPPH solution, add 3.2 mL of Vitamin C, let stand for 30 minutes, and read the absorbance at 400-600 nm. Operating time is measured from 0 to 60 minutes at the maximum wavelength. **Determination of antioxidant activity:** The decocta and infusion samples were made into a 1000 ppm solution by weighing 10 mg of extract powder in 10 mL of analytical-grade ethanol. Then made into 5 series of concentrations: 10 ppm, 20 ppm, 30 ppm, 40 ppm, 50 ppm. Each concentration was pipetted 3.2 mL and added 1.8 ml of 100 ppm DPPH solution, the mixture was put into a cuvette and then the absorbance was measured after reaching the operating time at the maximum wavelength obtained. In the positive control of vitamin C, 10 mg of vitamin C was weighed, dissolved with ethanol p.a in a 10.0 ml volumetric flask to the limit mark and obtained a concentration of 1000 ppm. Then made 5 series of concentrations, namely 1 ppm, 2 ppm, 3 ppm, 4 ppm, and 5 ppm. Then the solution series were read for their absorbance at the wavelength and operating time obtained. Antioxidant activity was calculated by the IC₅₀ value obtained through a linear regression equation of the relationship between concentration and % inhibition. Percent inhibition was obtained using the following formula:

$$\% \text{ Inhibition} = \frac{(\text{control absorbance} - \text{sampel absorbance})}{\text{control absorbance}} \times 100\%$$

Description:
Control absorbance = DPPH absorption value
Sample absorbance = DPPH absorption value after sample addition

RESULTS AND DISCUSSION

The yield results showed that the decoction of suruhan herbs produced a higher yield than the infusion (Table 1). The higher yield in the decoction method indicates that the extraction process at a higher temperature provides a greater opportunity for the solvent to attract the compounds contained in the herbal

medicine. The boiling temperature in the decoction method increases the diffusion of active compounds from the powder to the solvent more optimally. The higher the yield obtained, the more compounds were successfully extracted (Senduk et al., 2020). The high active compounds in plants are indicated by the high yield produced. According to (Qonitah et al., 2024), the yield results in both methods are classified as good because they have a value of more than 10%.

Phytochemical screening was conducted to determine the secondary metabolite content of the decoction and

infusion of suruhan herb. The results showed that both extraction methods contained secondary metabolites: alkaloids, flavonoids, tannins, and saponins. Table 2 shows the phytochemical screening results for the suruhan extract.

Qualitative phenol tests were also conducted on the decoction and infusion of suruhan herb (*Peperomia pellucida* (L.) Kunth) using 5% iodine reagent, 1% lead acetate, 1% potassium dichromate, and FeCl₃. The test results showed that all reagents gave positive results in both the decoction and infusion samples, indicating the presence of phenolic compounds.

Table 1. Extract yield

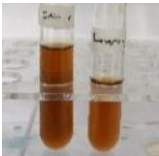
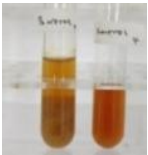
Decoction and Infusion Yield			
Sample	Initial Powder Weight (gram)	Extraction Powder Weight (gram)	% Yield (b/b)
Decoction	15	8,46	56,4
Infusion	15	3,23	21,53

Table 2. Phytochemical Screening

Secondary metabolite	Reagen	Result		Interpretation
		Decoction	Infusion	
Alkaloid	Dragendorff	++	+	Positif
	Mayer	++	+	Positif
Flavonoid	Mg + HCL	++	+	Positif
Tanin	Ferri (III) Chloride 10%	++	+	Positif
Steroid / Triterpenoid	CH ₃ COOH + H ₂ SO ₄	-	-	Negatif
Saponin	HCL 2N	++	++	Positif

Description: (+): indicates not very intense in color change; (++) : very intense color change

Table 3. Qualitative Phenol Test Results

Reagen	Result	
	Decoction	Infusion
Iodin 5%		
	++	+
Pb acetate 1%.		
	++	+

Reagen	Result	
	Decoction	Infusion
Potassium Dichromate 1%	 ++	 +
FeCl ₃	 ++	 +

Description: (++): Strongly detected as containing phenol compounds
(+): Moderately detected as containing phenol compounds

The 1% iodine reagent produces a temporary red color indicating an interaction between iodine and phenolic compounds (Saepudin et al., 2024). Testing using 1% Pb acetate produces a precipitate due to the formation of a complex between Pb^{2+} ions and phenolic hydroxyl groups that form an insoluble salt (Handayani et al., 2024). The 1% potassium dichromate test produces a dark color because the phenol compound undergoes oxidation to a quinone compound by potassium dichromate as a strong oxidizer. Meanwhile, the $FeCl_3$ test produces a bluish-black to deep black color due to the formation of a complex between the Fe^{3+} ion and the aromatic hydroxyl group (-OH) in the phenol compound.

Positive results in all tests indicate that the decoction and infusion methods effectively extract phenolic compounds. However, the reaction intensity in the decoction samples was stronger than in the infusion samples, indicating a higher phenolic compound content. This is due to the heating process, which can damage plant cell walls, allowing phenolic compounds to be released more easily. Furthermore, phenolic compounds are polar and therefore readily soluble in water, especially at higher temperatures.

Total Phenolic Content

Total phenolic content in suruhan herbs was determined using the Folin-Ciocalteu reagent using UV-Vis spectrophotometry. This method was chosen due to its simplicity. The principle of this method is the oxidation reaction of phenolic compounds, which causes the reduction of phosphomolybdate-phosphotungstate reagents to form a blue molybdenum-tungsten complex. The reaction can only occur in alkaline conditions, so sodium carbonate is added. The intensity of the blue color produced is proportional to the amount of phenolic compounds in the sample; therefore, the higher the sample concentration, the higher the absorbance value. Total phenolic content is expressed as GAE (Gallic Acid Equivalent), which is the number of milligram equivalents of gallic acid in 1 gram of sample.

The purpose of determining the operating time (OT) was to determine the measurement time that produces stable absorbance after the optimal reaction between gallic acid, folin-ciocalteu reagent, and sodium carbonate. Measurements were conducted at a wavelength of 765 nm over a time range of 0-60 minutes. The results showed that the operating time was achieved at 39 minutes, indicated by stable absorbance for 3 minutes, from 39 to 41

minutes. This indicates that the reaction had proceeded optimally, resulting in the formation of a complex that provides stable absorbance. These results align with research (Hidayatullah et al., 2023), which also obtained an operating time of 39 minutes for determining phenol content using gallic acid as a standard.

The maximum wavelength determination was conducted to determine the measurement wavelength that produces maximum absorbance of the gallic acid complex with folin-ciocalteu reagent and sodium carbonate within the established operating time. Measurements were performed over a wavelength range of 600-800 nm and a maximum wavelength of 742 nm was obtained with an absorbance value of 0.497. Determining the maximum wavelength is an important factor in UV-Vis spectrophotometric analysis because it provides better sensitivity and measurement accuracy.

A standard curve was constructed to determine the relationship between the

concentration of the standard solution and its absorbance value, thus allowing it to be used to determine the concentration of the test sample. The standard curve was constructed using gallic acid concentrations of 10, 20, 30, 40, and 50 ppm, measured at a wavelength of 742 nm.

All absorbance values were in the range of 0.2–0.8, thus meeting the measurement requirements according to the Lambert-Beer law and minimizing photometric errors (Saputri et al., 2022).

The measurement results yielded a linear regression equation of $y = 0.0093x + 0.1761$ with a coefficient of determination (R^2) of 0.9998. An R^2 value approaching 1 indicates a very strong linear relationship between concentration and absorbance. These results indicate that the higher the gallic acid concentration, the higher the absorbance value. Therefore, the standard curve obtained exhibits excellent linearity and can be used to determine total phenol content in samples (Asmorowati & Lindawaty, 2019).

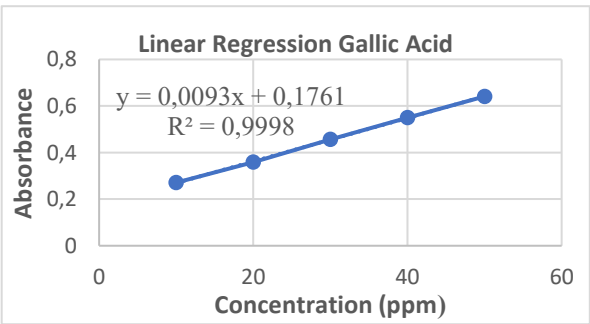


Figure 1. Linear Regression of Gallic Acid

Table 4. Measurement of Total Phenolic Content

Sample	Rep	Absorbance	Total Phenolic Content (mg GAE/g)	Average Total Phenolic Content (mg GAE/g)
Decoction	1	0,6405	49,935	50,308 ± 0,337
	2	0,6448	50,397	
	3	0,6466	50,591	
Infusion	1	0,5905	44,559	44,649 ± 0,079
	2	0,5916	44,677	
	3	0,5919	44,710	

The analysis results showed that the total phenol content of the decoction was

higher than that of the infusion. This is due to the boiling temperature of the decoction,

which damages plant cell walls and membranes, allowing solvent penetration into the tissue and increasing the solubility of polar phenolic compounds. Consequently, more phenolic compounds are extracted into the water. However, the temperature and duration of heating still need to be considered because they can damage phenolic compounds (Rudraswamy et al., 2021). These results support previous research showing that the extraction method affects the total phenol content. The difference in contact between the solvent and the ingredients in the decoction and infusion methods is one factor contributing to the difference in total phenolic content. Research from (Sakti et al., 2024) also showed that the boiled method produced higher total phenol levels than the brewed method, where the purslane boiled extract had a total phenol of 377.60 ± 2.44 mgGAE/g, while the brewed extract was 121.33 ± 1.66 mgGAE/g. These results support the finding that the decoction method is more effective in extracting phenolic compounds than the infusion method.

Antioxidant Activity

The determination of antioxidant activity begins with determining the

maximum wavelength for the results of determining the maximum wavelength of DPPH, which is 515 nm with an absorbance of 0.6898. Theoretically, the maximum wave of DPPH is 517 nm (Baliyan et al., 2022). In this study, a wavelength close to the theoretical was obtained. Determination of the operating time aims to determine the absorbance measurement time of a compound obtained, when the most stable results are obtained. The results of the study showed that the absorbance of the determination of the operating time obtained from the DPPH results added with vitamin C was stable in the 17-19 minutes. In line with research conducted by (Sukweenadhi et al., 2020) the stability of absorbance in the range of 15–20 minutes. Vitamin C is used as a standard because it is a natural antioxidant found in plants (Agustyarini et al., 2024). Determination of the vitamin C standard curve aims to determine the relationship between the concentration of the solution and its absorbance value, so that the sample concentration can be known. Then a standard curve was made with concentrations of 1, 2, 3, 4, 5 ppm. Each was pipetted as much as 3.2 ml then 1.8 ml of DPPH 100 ppm was added.

Table 5. Measurement of Antioxidant Activity

Sampel	Concentration (ppm)	Sampel Absorbance	Control Absorbance	% Inhibition (%)	Linear regression	IC50 (ppm)
Vit C	1	0,7642	0,8859	13,73744	$y = 11,641x + 2,4619$ $R^2 = 0,9972$	4,084
	2	0,6455		27,13625		
	3	05648		36,24563		
	4	0,4554		48,59465		
	5	0,3436		61,21458		
Decoction	10	0,5872		33,71712	$y = 0,8791x + 25,107$ $R^2 = 0,9996$	28,316
	20	0,5039		43,11999		
	30	0,4318		51,25860		
	40	0,3531		60,14222		
	50	0,2732		69,16130		
Infusion	10	0,633		13,73744	$y = 0,9177x + 18,851$ $R^2 = 0,9893$	33,942
	20	0,560		27,13625		
	30	0,468		36,24563		
	40	0,415		48,59465		
	50	0,299		61,21458		

Antioxidant testing results for vitamin C, decoction, and infusion of the suruhan herb indicated "very strong" antioxidant potential. The decoction sample exhibited higher antioxidant activity, with an IC₅₀ value of 28.316 ppm. A lower IC₅₀ value indicates higher antioxidant potential, as only a lower concentration is required to inhibit 50% of free radicals (Kusbandari & Susanti, 2017). This is likely due to the high concentration of active ingredients extracted from the decoction. The decoction undergoes a continuous heating process, which improves the solvent's kinetics, thus increasing its extraction capacity. However, the temperature and duration of heating also require careful consideration, as they can damage thermolabile compounds (Mangiwa et al., 2023; Multi et al., 2024).

The decoction had a lower IC₅₀ value than the infusion, indicating slightly greater effectiveness in scavenging free radicals. These results align with research by (Yanti et al., 2023), which found that suruhan extract has very strong antioxidant activity. Furthermore, research by (Mahmudati et al., 2020), which found that the decoction method yields higher antioxidant activity than infusion because high temperatures enhance the extraction of phenolic compounds. Phenolics and flavonoids act as hydrogen donors to stabilize DPPH free radicals, while alkaloids and saponins also contribute to antioxidant activity (Halimah & Sa'ad, 2024).

This supports the use of decoction as a method of preparing herbal preparations that is environmentally friendly and maintains antioxidant content. It also provides a scientific basis for selecting medicinal plant processing methods for public benefit. The decoction method efficiently extracts active compounds, is more practical for the general public, and is suitable for traditional processing to

preserve the active ingredients in suruhan (*Peperomia pellucida* (L.) Kunth).

CONCLUSION

Suruhan herb (*Peperomia pellucida* (L.) Kunth) with the extraction method of boiled and brewed was proven positive for containing secondary metabolites of alkaloids, flavonoids, saponins, tannins and phenols, and negative for steroids or triterpenoids. There was a significant quantitative difference in total phenol levels between the two water-based extraction methods tested. The decoction method produced a higher total phenol content, namely 50.308 ± 0.337 mg GAE/g, compared to the infusion method 44.308 ± 0.079 mg GAE/g. The antioxidant activity of the decoction and brewed was categorized as very strong with an IC₅₀ value of 28.316 ppm in the decoction and 33.942 ppm in the infusion. Thus, the decoction extraction method was proven to be more effective and optimal in extracting phenol compounds from suruhan herb and had higher antioxidant activity than the infusion.

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CONFLICT OF INTEREST

No potential conflicts of interest have been reported by the authors.

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