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Preparation Of Simplicia And Testsspecific And Non-Specific Parameters Of Celery Mustard (*Cyanthilium Cinereum)*

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ABSTRACT
Abstract: Sky mustard (Cyanthillium cinereum) is a medicinal plant that has long been used in traditional medicine because of its potential pharmacological properties attributed to its bioactive secondary metabolites. Standardization of simplicia is essential to ensure the quality, safety, and consistency of herbal raw materials prior to their utilization in pharmaceutical preparations. This study aimed to prepare sky mustard simplicia and evaluate its specific and non-specific quality parameters as well as its phytochemical characteristics. A laboratory-based experimental study was conducted using sky mustard leaves processed into simplicia through harvesting, wet sorting, washing, drying, grinding, and storage. Ethanolic extracts were prepared using maceration followed by Soxhlet extraction. Quality evaluation included determination of moisture content, drying loss, total ash content, water-soluble extractive value, ethanol-soluble extractive value, and thin-layer chromatography (TLC). The results demonstrated that the water-soluble extractive value (19.1%) and ethanol-soluble extractive value (6%) met the requirements of the Indonesian Herbal Pharmacopoeia. However, the moisture content (18%), drying loss (42%), and total ash content (20%) exceeded the recommended standards, indicating that improvements in the drying and post-harvest handling processes are required. Thin-layer chromatography revealed characteristic chromatographic profiles with Rf values of 0.7125, 0.8150, and 0.9625, confirming the presence of bioactive constituents. These findings indicate that Cyanthillium cinereum has promising potential as a herbal medicinal material, although optimization of simplicia preparation and standardization procedures is necessary to obtain consistent quality and comply with pharmacopoeial standards

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1. INTRODUCTION

Traditional medicine refers to the use of natural resources and therapeutic practices that have been passed down through generations within specific cultures and communities. Across the world, different countries have developed distinctive systems of traditional medicine based on indigenous knowledge and locally available medicinal plants. Despite the rapid advancement of modern medicine, traditional medicine continues to be widely practiced as an alternative or complementary healthcare approach because of its accessibility, affordability, and perceived effectiveness. Well-known traditional medicine systems include Traditional Chinese Medicine (TCM), which incorporates herbal remedies, acupuncture, and massage; Ayurveda from India, which combines herbal medicine, dietary regulation, and yoga; Kampo medicine in Japan, which emphasizes herbal formulations; European herbal medicine that utilizes medicinal plants such as chamomile and echinacea; the Unani system originating from Classical

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Greece and further developed in the Middle East; and various indigenous healing practices in America, Australia, and other regions that rely on locally available medicinal plants and natural therapies (Hardjosworo, 2010).

Indonesia possesses a rich biodiversity that has contributed to the long-standing tradition of *jamu*, a herbal medicine system that utilizes medicinal plants, spices, roots, and other natural ingredients for disease prevention and health promotion. Numerous medicinal plants are commonly incorporated into traditional herbal preparations, including turmeric (*Curcuma longa*), ginger (*Zingiber officinale*), temulawak (*Curcuma xanthorrhiza*), betel leaf (*Piper betle*), and sappan wood (*Caesalpinia sappan*). These plants have been traditionally recognized for their anti-inflammatory, antioxidant, antimicrobial, digestive, and antiseptic properties, making them valuable components of Indonesian ethnomedicine.

Sky mustard is another plant that is commonly consumed as a vegetable in several Southeast Asian countries, including Indonesia. Although it is primarily recognized as a food source, its potential medicinal properties have attracted increasing scientific attention. However, evidence supporting its therapeutic applications remains limited, and its use should not replace clinically validated medicines. Existing studies suggest that sky mustard contains various bioactive compounds with potential pharmacological activities, but additional scientific investigations are required to confirm its efficacy and safety before it can be recommended for medicinal purposes (Pratiwi & Fauziyah, 2018).

Phytochemical investigations have demonstrated that sky mustard contains several classes of secondary metabolites, including flavonoids, alkaloids, tannins, saponins, phenolic compounds, steroids, and triterpenoids. These compounds are known to exhibit diverse biological activities, such as antioxidant, anti-inflammatory, antimicrobial, and immunomodulatory effects, which may contribute to the plant's therapeutic potential. Secondary metabolites play an essential role in plant defense mechanisms and adaptation to environmental stress while also serving as important bioactive constituents for pharmaceutical and medicinal applications (Sunarjono, 2004). Previous studies by Yulia et al. (2011) also confirmed the presence of alkaloids, phenols, flavonoids, saponins, steroids, and triterpenoids in sky mustard extracts, further supporting its potential as a medicinal plant.

Considering the increasing interest in herbal medicine and the importance of ensuring the quality and safety of medicinal plant materials, the standardization of simplicia and phytochemical screening are essential steps before herbal materials can be developed into pharmaceutical products. Therefore, this study aimed to evaluate the specific and non-specific quality parameters of sky mustard leaf simplicia and to identify its major phytochemical constituents through phytochemical screening. These findings are expected to provide scientific evidence supporting the quality standardization and future utilization of sky mustard leaves as a potential herbal medicinal resource.

II. LITERATURE REVIEW

Farmakognosi

Pharmacognosy is a branch of pharmaceutical science that studies the identification, isolation, characterization, and determination of the pharmacological activity of natural ingredients used in medicines. This field discusses various plants, animals, and minerals that are used for medicinal purposes or have the potential to be developed into medicines (Puspa, 2015).

Here are some of the key aspects in the field of pharmacognosy:

1. Identification of Natural Ingredients: Pharmacognosy studies how to identify plants, animals, and minerals that can be used in medicine. It includes an understanding of the morphology, anatomy, and physical and chemical characteristics of various natural materials.
2. Isolation and Purification of Compounds: The process of isolation and purification of active compounds from natural materials is an important part of pharmacognosy. This method involves techniques such as extraction, chromatography, and fractionation to obtain compounds with pharmacological activity.
3. Pharmacological Activity Evaluation: Pharmacognosy evaluates the pharmacological activity of isolated natural materials. It involves testing against various biological models to determine the potential treatment or pharmacological effects of the compound.
4. Ethnobotanical Studies: Pharmacognosy also pays attention to people's traditional knowledge of the use of medicinal plants and natural medicines. The study of ethnobotany helps in understanding traditional ways of use that have been applied from generation to generation.
5. New Drug Development: Pharmacocognition research makes an important contribution to the development of new drugs. Compounds isolated from natural materials could be the basis for the development of modern medicines.

Pharmacognosy plays an important role in understanding the therapeutic potential of natural ingredients and bridging traditional knowledge with modern science. By understanding these natural resources, pharmacognosy helps in identifying potential new drugs and providing a scientific basis for the development of new therapies.

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Simplisia

"Simplisia" refers to plant raw materials or plant parts used in the manufacture of traditional medicines or herbal supplements. Simplisia can be leaves, roots, stems, flowers, fruits, or other parts of plants that are used whole or processed simply (Sudarsono, 2007).

The process of using simplicia in traditional medicine can involve methods such as drying, soaking, or grinding. The main purpose of using simplicia is to take advantage of the potential of the active substances contained in the plant.

Standardization of Simplification

A moisture test is a method to determine the amount of water contained in a material. It is important to test the moisture content to determine the quality and safety of a material (Prasetyo et al., 2019). The gravimetric method is based on the principle of evaporation of water present in the material by heating path, then weighed until a constant weight. The weight reduction that occurs is the water content contained in the material. The formula is as follows: Moisture content (%) = = X 100%$\frac{W1-W2}{W1}$

Description:

W1 = Initial sample weight (grams)

W2 = Weight of the sample after drying (grams)

Ethanolafarma

Ethnopharmacy (ethnopharmacology) is a branch of science that studies the traditional use of medicinal plants by certain societies. This field includes research on local knowledge, traditional wisdom, as well as the use of herbal remedies for medicinal and health purposes. Ethnopharmacy discusses the interaction between humans and medicinal plants, as well as how local wisdom can provide insights into the development of new medicines, health practices, and environmental sustainability (Soermadji, 2012).

Research in ethnopharmacy often includes the identification and characterization of active compounds in medicinal plants, as well as an understanding of how traditional uses can provide additional information for the development of modern medicines. Ethnopharmacy also highlights the rich local wisdom and medicinal traditions contained in various cultures around the world.

Medicinal Plants

Medicinal plants refer to plants that have natural chemicals that are used for medicinal or health care purposes. These plants can have different parts, such as roots, leaves, flowers, fruits, or bark, that contain active compounds that have pharmacological or therapeutic effects (Kokasih, 2005).

Examples of medicinal plants that are often used include ginseng, echinacea, chamomile, aloe vera, curcuma (turmeric), and other herbal plants. However, it is important to remember that while medicinal plants can provide benefits, not all medicinal plants are safe to use without supervision or consultation with a healthcare professional. Some medicinal plants can have interactions with other drugs or cause side effects. Therefore, consulting an experienced doctor or herbalist is a wise step before using medicinal plants for treatment.

2.6 Extracts

Extract is a substance produced from a substance or material by extraction, which is the process of refining or separating certain substances from raw materials using solvents or certain techniques. Extracts can be obtained from a variety of sources, including plants, animals, and microorganisms. The extraction process is generally carried out to isolate or enrich certain desired compounds (Setyowati, 2011),

In the context of dietary supplements or health products, extracts often refer to concentrated forms of natural substances, such as plant or herbal extracts, that are used for specific purposes, such as traditional medicine, health improvement, or nutritional support.

Screening Phytochemistry

In phytochemical screening, alkaloids are one of the groups of chemical compounds that are often sought after because they have significant pharmacological activity. Alkaloids are nitrogen-based organic compounds commonly found in plants. Phytochemical screening is a chemical test process that aims to identify and isolate certain chemical compounds in plant raw materials (Wiranti & Fathoni, 2012).

Alkaloids are often identified in phytochemical screening using a variety of chemical tests. Some special chemical reaction tests can be used to identify the presence of alkaloids, such as tests with Dragendorff reagents, Mayer reagents, or Wagner reagents. Once identified, the alkaloids can be isolated from the plant raw materials using extraction and purification techniques.

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III. RESEARCH METHODS

Types and plans of material collection

The method used in this study is a combination of 2 methods, namely qualitative methods and quantitative methods.

Quantitative research is research aimed at the processing of numbers. Each data collected is in the form of numbers and the results of the research refer to the data of these numbers. In quantitative research, the use of graphs can help measure data, while qualitative research is not based on numerical data. Qualitative research generally collects data and information in the form of sentences. Although the results are not as accurate as quantitative research, qualitative research can be relied upon to make better conclusions due to the application of applicable theories (Sugiyono, 2017).

The collection of materials or samples for this practicum began with the planting of sky mustard saplings which lasted for 3 months. During the planting process, data collection is carried out on all forms of changes that occur such as external factors such as weather, temperature, wind, humidity. Meanwhile, internal factors such as what fertilizer is used.

Number of Plants and Number of Samples

The number of mustard plants planted is 5 plants, and they all live until the last day of harvest. The original yield of the plants I planted was as much as 13 grams and it was very far from the provision where the provision was as much as 250 grams, so I bought mustard sky powder in one of the online applications.

Sample Collection Location and Time

The sample collection location was carried out at the Batam University Laboratory on November 17, 2023, at 13:00 WIB. Where the duration of this sample collection lasts approximately 3 months**.**

Materials and Tools

The materials I use are of course samples of the original mustard that I grow, and for the materials I use, they are scissors, crackle bags, newspapers, gloves, digital scales, and wood.

How It Works

Creation of Simplicia

The stages of making simplicia are carried out by collecting raw materials after planting for 3 months. The plant I plant is a sky mustard that uses its leaves. After the plants are collected, a wet sorting is carried out to separate dirt and foreign matter. After that, washing the plants is carried out with clean water and continued with pruning which is carried out to facilitate the drying process by thinly slicing the plants then the plants are dried at room temperature for 3 days and for 3 days. After drying, dry sorting is carried out which is the final stage in making simplicia and continues with packing and storage.

Extract Making Process

The process of making extracts has 2 stages, namely:

1. Maceration Extraction

Maceration is done by putting 100 grams of simplicia powder into a 1L chocolate bottle then adding 96% ethanol as much as 3 fingers on top of the simplicia powder that has been inserted earlier, then closing the bottle using aluminum foil and tying it with rubber. After that, shake the bottle until the powder dissolves with ethanol and soak for 3 days. For 3 days, screening was carried out using filter paper.

2. Soccleation Extraction

Socceration is carried out after maceration by making sure the soclet tool is sterile then pouring the maceration results into a round base flask as much as 2/3 the height of the pumpkin. After that, take the kendensor and connect it on top of the lead and clamp it with clamps and stands. Next, install the hose on the shovel and the heating jacket is connected to the electric current. Once the condensate is almost parallel to the siphon, the heating matel is turned off, then pour and record the amount of ethanol that has been successfully separated from the maceration results. Then repeat the same thing until the maceration results are only 50 ml left. The results of the socle are evaporated with a series of waterbaths until 20 ml remains. Pour the steam results into a vial bottle and seal tightly with aluminum foil and store it in the refrigerator.

Testing process Non-specific parameters

1. Water Soluble Juice Test

This test was carried out by weighing 3 grams of simplicia powder then put it in a bottle and given a saturated solution solvent from the result of mixing aquadest and chloroform as much as 100 ml. After that, close the bottle and cover it with aluminum foil and then tie it with rubber, shaking the bottle for 6 hours every 6 hours with a shaking time of 15 minutes. After that, strain using filter paper and then take 20 ml of extract, then burn until the crust remains in the cup. Give a small amount of ethanol to make it easier to pick up the scale, and store the results in vial bottles.

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2. Ethanol Soluble Juice Test

This test was carried out by weighing 3 grams of simplicia powder and then putting it in a bottle and giving 96% ethanol as much as 100 ml. After that, close the bottle and cover it with aluminum foil and then tie it with rubber, shaking the bottle for 6 hours every 6 hours with a shaking time of 15 minutes. After that, strain using filter paper and then take 20 ml of extract, then burn until the crust remains in the cup. Give a small amount of ethanol to make it easier to pick up the scale, and store the results in vial bottles.

3. Drying Shrinkage Test

This test was carried out by weighing 2 grams of simplicia powder. Then the cross cups are heated for 10 minutes, 5 minutes, 5 minutes with the oven and each heating is left for 5 minutes in the decimater. After that, put the simplisia in a cross cup and oven for 30 minutes 3 times.

4. Moisture Content Test

This test was carried out by weighing 3 grams of simplicia powder. Then the cross cups are heated for 10 minutes, 5 minutes, 5 minutes with the oven and each heating is left for 5 minutes in the decimater. After that, put the simplisia in a cross cup and oven for 30 minutes 3 times.

Specific parameter testing process

The test was carried out by weighing 2 grams of simplicia powder. Then the cup is heated to the incubator for 10 minutes, after which it is left for 5 minutes in the decifier. After that, put the simplicia in a cup and put it back in the incubator and heat it for 30 minutes.

Thin-Layer chromatography testing process

The test was carried out by preparing a 1x10 cm KLT plate. Next, also prepare a developer solution from a mixture of methanol: ethyl acetate: n-hexane with a ratio of 6 : 2 : 2. Take a solution of 10 ml and pour it into the chamber. The KLT plate was given lines at both ends of the sides, then gave 2 points to one of the lines. Apply the socle results to the 2 points that have been made with a capillary pipette, then insert the KLT plate into the chamber that has been filled with the solution, then close and wait for the sample to rise to the specified limit. After that, dry the KLT plate, then place the KLT plate in UV light and see the shape of the stain formed.

Sample collection technique

The sample collection technique is by planting mustard plants with a target of 250 grams. The principle of determination is the same as accidental sampling. But the researchers first determined the number of samples needed. The advantage of using this technique in sampling is that it is practical because the research sample is known beforehand.

Sample Collection Instruments

Sample collection technique

The sample collection technique used is observation (observation). This technique is applied by directly observing the object to be studied, and the accidental sampling technique. That is, the researcher first determines the number of samples needed. The advantage of using this technique in sampling is that it is practical because the needs of the research sample have been determined in advance.

Sample Collection Instruments

Sample collection in this study was carried out with various research methods such as observation and documentation, requiring tools as instruments. The instruments in question are cameras, mobile phones for videos, pens and so on.

IV. RESULTS AND DISCUSSION

Sample Collection and Testing Results

Planting simplicia is carried out by planting sky mustard after 3 months. Plants of the sky are made use of their leaves. After the plants are collected, a wet sorting is carried out to separate dirt and foreign matter. After that, weighing is carried out.

Table 1 Whole Weighing Results

Crop Yield	Whole Weighing Results
5 Sky mustard leaf plants	82 Grams

Results of Material Collection

After that, washing the plants is carried out with clean water and weighed, followed by pruning which is carried out to facilitate the drying process by thinly sliceing the plants then the plants are dried at room temperature for 3 days. After drying, dry sorting is carried out which is the final stage in making simplicia and weighed again.

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The results of making simplicia powder are obtained as much as 13 grams while 250 grams must be needed (50 grams for testing, 100 grams for products, and 100 grams for maceration). The shortage can be overcome by buying at an online store to meet the number of simplicia needed. The final stage is packing that is packaged in glass bottles and avoided from the sun.

Table 2 Weighing Results of Wet Sorting and Dry Sorting

Wet Sorting Weighing	Dry Sorting Weighing
32 Grams	13 Grams

Maceration Results

The maceration is done by putting 100 grams of simplicia powder into a 1L brown bottle then adding 96% ethanol as much as 3 fingers on top of the simplicia powder that has been inserted earlier, then closing the bottle using aluminum foil and tying it with rubber. After that, shake the bottle until the powder dissolves with ethanol and soak for 3 days. For 3 days, screening was carried out using filter paper.

Table 3 Results of maceration extracts

Day	Sample weight	Before screening	After screening
Day 1	100 gr	110 ml	95 ml
Day 2	100 gr	148 ml	125 ml
Day 3	100 gr	84 ml	59 ml

Moisture Content Test Results

This test was carried out by weighing 3 grams of simplicia powder. Then the cross cups are heated for 10 minutes, 5 minutes, 5 minutes with the oven and each heating is left for 5 minutes in the decimater. After that, put the simplisia in a cross cup and oven for 30 minutes 3 times.

Moisture test measurements can be carried out using the following formula:

- Berat Total = 49.18 - 46.72 = 2.46 g
  = 49.18 - 46.72 = 2.46 g
  = 49.18 - 46.72 = 2.46 gr +
  = 7.38 g
- Final weight = 7.38 g ÷ 3 g
  = 2.46 g
- % Up to Air = $\frac{W-W1}{W}$ x 100%
  = x 100%$\frac{3-2,46}{3}$
  = 0.54 g
  = 18%

So the moisture content test on the celestial mustard leaf simplicia is 18%. In the 2017 edition of the hebal pharmacopoeia, the moisture content was <12%. The moisture content in mustard greens exceeds the pharmacopoeia because the simplicia has a high moisture content or has not been dried completely.

Table 4. Results of Determination of Moisture Content

Specific Parameter Results	Determination Results
18%	<12%

Drying Shrinkage Test Results

This test was carried out by weighing 3 grams of simplicia powder. Then the cross cups are heated for 10 minutes, 5 minutes, 5 minutes with the oven and each heating is left for 5 minutes in the decimater. After that, put the simplisia in a cross cup and oven for 3 minutes 3 times.

Drying shrinkage measurement can be done using the following formula:

- Berat total = 48.50 g – 46.72 g = 1.78 g
  = 48.50 gr – 46.72 gr = 1.78 gr
  = 48.18 gr – 46.72 gr = 1.66 gr +
  = 5.22 g
- Final weight = 5.22 g ÷ 3 g
  = 1.74 gr
- Drying Shrinkage = x 100%$\frac{W-W1}{W}$
  = $\frac{3-1,74}{3}$ x 100%

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= 0.42 g
= 42%

So the drying shrinkage rate in the celestial mustard leaf simplicia is 42%. In the 2017 edition of the herbal pharmacopoeia, the drying rate was <10%. The rate of drying shrinkage in sky mustard simplicia exceeds that of pharmacopoeia because simplicia has a high moisture content or has not been dried completely.

Table 5 Results of Drying Shrinkage Rate Determination

Specific Parameter Results	Determination Results
42%	<10%

Total Ash Content Test Results

The test was carried out by weighing 2 grams of simplicia powder. Then the cup is heated to the incubator for 10 minutes, after which it is left for 5 minutes in the decifier. After that, put the simplicia in a cup and put it back in the incubator and heat it for 30 minutes.

Measurement of ash content can be done with the following formula:

- Final Weight
  = 41,953 gr – 41,552 gr = 0.401 gr
- Up to % Abu
  = x 100%$\frac{W1}{W}$
  = x 100%$\frac{0,401}{2}$
  = 0.200 gr
  = 20%

So the percentage of ash content obtained is 20%. In the 2017 edition of the herbal pharmacopoeia, the ash content was <13.1%.

Table 6 Results of Determination of Ash Levels

Specific Parameter Results	Determination Results
20%	<13.1%

Results of Water Soluble Juice and Ethanol Testing

a. Water-soluble cider level testing

This test was carried out by weighing 5 grams of simplicia powder and then putting it in and giving a saturated solution solvent from the result of mixing aquadest and chloroform as much as 100 ml. After that, close the bottle and cover it with aluminum foil and then tie it with rubber, shaking the bottle for 6 hours every 6 hours with a shaking time of 15 minutes. After that, strain using filter paper and then take 20 ml of extract, then burn until the crust remains in the cup. Give a small amount of ethanol to make it easier to pick up the scale, and store the results in vial bottles.

b. Ethanol Soluble Juice Testing

This test was carried out by weighing 5 grams of simplicia powder and then putting it in a bottle and giving 96% ethanol as much as 100 ml. After that, close the bottle and cover it with aluminum foil and then tie it with rubber, shaking the bottle for 6 hours every 6 hours with a shaking time of 15 minutes. After that, strain using filter paper and then take 20 ml of extract, then burn until the crust remains in the cup. Give a small amount of ethanol to make it easier to pick up the scale, and store the results in vial bottles.

The water soluble juice test rate and ethanol soluble test rate can be calculated using the following calculation formula:

- Penimbangan
  - Solvent soluble cider weight = 76,732 g – 76,541 g = 0.191 g
  - Soluble weight of ethanol in solvent = 49,786 g – 49,726 g = 0.69 g
- Percent of water-soluble juice content
  = x 100%$\frac{Berat\ Sari\ Laut\ Air}{Berat\ Sampel(gr)}\ x\ \frac{Jumlah\ Pelarut}{Larutan\ yang\ Diambil}$
  = x 100%$\frac{0,191}{5}\ x\ \frac{100}{20}$
  =19.1%

So the percentage of water-soluble juice obtained is 19.1%. In the determination of the second edition of the herbal pharmacopoeia in 2017, the level of water-soluble juice >12.3%.

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- Percent ethanol content
  = x 100% $\frac{Berat\ Sari\ Larut\ Etanol}{Berat\ Sampel\ (gr)}\ x\ \frac{Jumlah\ Pelarut}{Larutan\ yang\ Diambil}$
  = x 100% $\frac{0,06}{5}\ x\ \frac{100}{20}$
  = 6%

So the percentage of water-soluble juice obtained is 6%. In the 2017 edition of the second edition of the herbal pharmacopoeia, the soluble ethanol content was >5.4%.

Table 7 Results of water soluble cider and ethanol test

Sea Juice Rate Testing	Specific Parameter Results	Determination Results
Air + kloroform (20ml)	19,1%	>12.3%
Ethanol (20ml)	6%	>5.4%

Scolision Test Results

Socleration is carried out after maceration by making sure the oclet tool is sterile then pouring the maceration results into a round base flask as much as 2/3 the height of the pumpkin. After that, take the kendensor and connect it on top of the lead and clamp it with clamps and stands. Next, install the hose on the shovel and the heating jacket is connected to the electric current. Once the condensate is almost parallel to the siphon, the heating matel is turned off, then pour and record the amount of ethanol that has been successfully separated from the maceration results. Then repeat the same thing until the maceration results are only 50 ml left. The results of the socle are evaporated with a series of waterbaths until 20 ml remains. Pour the steam results into a vial bottle and seal tightly with aluminum foil and store it in the refrigerator.

Table 8 Scleration results

Cycles	Temperature	Start time	Clock Completion	Ethanol yield
1	75 d°C	09.26 WIB	09.56 WIB	130 ml
2	60 d°C	10.00 a.m.	10.38 AM	133 ml
3	50 d°C	10.40 a.m.	11.00 a.m.	42 ml
4	60 d°C	11.10 AM	11.57 AM	23 ml
Amount of ethanol obtained: 328 ml				

Thin-Layer Chromatography Test Results

The test was carried out by preparing a 1x10 cm KLT plate. Next, also prepare a developer solution from a mixture of methanol: ethyl acetate: n-hexane with a ratio of 6 : 2 : 2. Take a solution of 10 ml and pour it into the chamber. The KLT plate was given lines at both ends of the sides, then gave 2 points to one of the lines. Apply the socle results to the 2 points that have been made with a capillary pipette, then insert the KLT plate into the chamber that has been filled with the solution, then close and wait for the sample to rise to the specified limit. After that, dry the KLT plate, then place the KLT plate to UV and see the shape of the stain formed. After that, measure and calculate the Rf found. The results obtained from the KLT test were RF1 0.7125, RF2 0.815, RF3 0.9625.

V. CONCLUSION

Based on the research that has been carried out on the test of specific and non-specific parameters of mustard cilant, it can be concluded that:

1. Sky mustard leaf extract contains alkaloids, falvonoids, phenols, steroids, and terpenoids.
2. In the maceration process, the extract results were 338ml and when the total ethanol yield was carried out was 328ml.
3. The extract produced in the chocolate process is a thick blackish-green extract.
4. The content of moisture and ash content can be determined by the oven method, even though testing is carried out with the same sample, it turns out that there is a difference in the results, this is due to the sample repair process.

VI. ADVICE

It is recommended that the preparation of simplicia of sky mustard leaves and extraction is carried out in advance considering that the evaporation process into a thick extract that can be tested takes a relatively long time. The procurement of practicum tools may be multiplied so that each individual can do practicum without waiting long due to the limitations of tools and the need for additional time.

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