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COMMUNITY SERVICE DATA

Title (PKM) **:**Training on the Utilization of Tomato Fruit Extraction as a Natural Antioxidant Cosmetic Product in Lau Baleng Village, Kabanjahe District

Chairman of PkM : **Miftahul Jannah, S.KM., M.KM**

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2. Linda Purwanti, S.kep., Nurse., MKM

3. NS. Indah Selviana, S. Kep., MKM

4. Rio Jenita Sipayung, S.Tr.Keb.MKM

Affiliates : Arta Kabanjahe College of Health Sciences

Activity Categories : Based on assignments from higher education institutions

PkM Proposed Year : 2024

Year of Activity : 2024

ActivityLocation : Lau Cimba Village, Kabanjahe District, Karo Regency

Source of PkM Funds : Arta Kabanjahe College of Health Sciences

Journal: Journal of Community Service
Volume. 1 | Numbers. 1 | Page. 18-26
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ENDORSEMENT PAGE

1. **Activity Title** : Training on the Utilization of Tomato Fruit Extraction as a Product Natural Antioxidant Cosmetics in Lau Baleng Village, Kabanjahe District
2. **Year of Implementation** : 2024
3. **Implementation Costs** :Rp. 3,445,000,-
4. **Place of Implementation** :Lau Cimba Village, Kabanjahe District, Karo Regency
5. **Implementation Team**

   Chairman :**Miftahul Jannah, S.KM., M.KM**

   Member : 1.Ade Aulia Siahaan, S.Kep, Ners., MKM
   2. Linda Purwanti, S.kep., Nurse., MKM
   3. NS. Indah Selviana, S. Kep., MKM
   4. Rio Jenita Sipayung, S.Tr.Keb.MKM
6. **Output Produced** : - PkM Report
   - Publication

Kabanjahe, June 15 2024

Head of STIKes Arta Kabanjahe

Herianto Bangun, S. Keo., Ners., M. Biomed

Chief Executive

Miftahul Jannah, S.KM., M.KM

Approve

LPM Chairman Arta Kabanjahe

July Evianna Br Purba, M.Kes

Journal: Journal of Community Service
Volume. 1 | Numbers. 1 | Page. 18-26
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A. Introduction

1. Background

Tomatoes (Solanum lycopersicum) are known to be rich in antioxidant compounds, especially lycopene, which is very useful in fighting free radicals which can damage body cells, including skin cells. Free radicals are one of the main causes of premature aging and various skin diseases. The use of tomatoes as a basic ingredient for natural cosmetic products offers a healthier and environmentally friendly alternative to chemical products.

Lau Baleng Village in Kabanjahe District is an area that has abundant tomato agricultural products. However, the use of tomatoes by local communities is still limited to household consumption and sales in local markets. Through this training, it is hoped that people can process tomatoes into natural cosmetic products which are not only useful for personal needs but also open up new business opportunities.

2. Goals

Educate the people of Lau Baleng Village about the benefits of tomatoes as a source of natural antioxidants in cosmetics.

Training the community in techniques for extracting lycopene from tomatoes and making cosmetic products.

Encourage the development of small businesses based on natural cosmetic products in Lau Baleng Village.

3. Benefits

Increase community knowledge and skills in exploiting local potential.

Reduce dependence on chemical cosmetic products.

Improving community welfare through developing businesses based on natural ingredients.

B. Theory and Literature Review

1. Antioxidants and their role in cosmetics

Antioxidants are compounds that prevent or slow down cell damage caused by free radicals. In cosmetics, antioxidants protect the skin from premature aging, repair damage caused

Journal: Journal of Community Service
Volume. 1 | Numbers. 1 | Page. 18-26
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by UV exposure, and increase skin elasticity. Lycopene, a powerful antioxidant in tomatoes, has been shown to have a protective effect on the skin, making it an ideal ingredient for cosmetic products.

2. Lycopene and Extraction from Tomatoes

Lycopene is a carotenoid pigment that gives tomatoes their red color. As an antioxidant, lycopene is able to ward off free radicals and protect skin cells from oxidative damage. The lycopene extraction process usually uses organic solvents such as ethanol or hexane. In making cosmetics, ethanol is recommended because it is safer for the skin.

3. Extraction Process and Application in Cosmetics

Extraction of lycopene from tomatoes can be done using various methods such as maceration, percolation, and Soxhlet extraction. Lycopene extract can then be used in various cosmetic products such as creams, serums, masks and toners. This product is able to nourish, protect the skin, provide anti-aging effects, and increase skin softness and brightness.

C. Implementation Method

1. Time and Place

This training will be held on 14-15 June 2024 at the Lau Baleng Village Hall, Kabanjahe District, from 09.00 to 16.00 WIB.

2. Participants

This training was attended by 30 participants consisting of housewives, young women and youth from Lau Baleng Village who were interested in developing natural cosmetic products.

3. Implementation Method

Theory: Presentation of material regarding antioxidants, the benefits of lycopene, and extraction techniques.

Demonstration: Practical steps in the process of extracting lycopene from tomatoes and making cosmetic products.

Journal: Journal of Community Service
Volume. 1 | Numbers. 1 | Page. 18-26
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Practice: Participants carry out extraction and manufacture of cosmetic products independently with the assistance of an instructor.

Discussion and Evaluation: Question and answer session and evaluation of participants' work results.

D. Tools and Materials

1. Tools

Blender : To crush tomatoes into pulp.

Heater (water bath) : To help the lycopene extraction process with solvents.

Cloth filter : To separate the extract liquid from tomato pulp.

Extraction flask : For the extraction process using a solvent.

Drop pipette : For taking extract fluid.

Sterile glass container : To store lycopene extract.

Digital scales : To weigh ingredients precisely.

Thermometer : To measure temperature during the extraction process.

pH meter : To ensure the pH of cosmetic products meets standards.

2. Material

Fresh tomatoes (10 kg) : As the main ingredient for extraction.

Ethanol (1 liter) : As a solvent for lycopene extraction.

Distilled water (1 liter) : To mix ingredients and clean tools.

Pure coconut oil (500 ml) : As an emollient in cosmetic products.

Aloe vera gel (500 ml) : As a basic ingredient in product formulation.

Vitamin E (30 capsules) : As an additional antioxidant.

Glycerin (250 ml) : To add moisture to the product.

Natural preservatives (such as grape seed extract): To maintain product stability.

E. How to Make the Product

1. Lycopene Extraction Process from Tomatoes

Wash the tomatoes and cut them into small pieces.

Journal: Journal of Community Service
Volume. 1 | Numbers. 1 | Page. 18-26
Issue. April 20, 2024
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Puree the tomatoes with a blender until they become pulp.

Add ethanol to the tomato pulp in a ratio of 1:2 (1 part tomato, 2 parts ethanol).

Heat the mixture at 40-50°C for 2-3 hours to help the extraction process.

Strain the mixture using a cloth strainer to separate the lycopene extract from the tomato pulp.

Store the lycopene extract in a sterile glass container and store it in a cool, dark place.

2. Making Antioxidant Facial Masks from Tomato Extract

Mix 2 tablespoons of lycopene extract with 1 tablespoon of aloe vera gel and 1 teaspoon of coconut oil.

Add 2-3 drops of vitamin E from the capsule.

Stir until evenly mixed and apply to clean face.

Leave it for 15-20 minutes, then rinse with warm water.

3. Making Facial Toner from Tomato Extract

Mix 1 part lycopene extract with 2 parts distilled water.

Add 1 teaspoon of glycerin to provide a gentle effect on the skin.

Pour the mixture into a spray bottle and use as a facial toner every morning and night.

F. Activity Costs

1. Equipment

- Blender : IDR 300,000,-
- Heater (water bath) : IDR 1,000,000,-
- Cloth filter : Rp. 50,000,-
- Extraction flask : Rp. 150,000,-
- Drop pipette : IDR 20,000,-
- Sterile glass containers (30 pcs) : Rp. 300,000,-
- Digital scales : IDR 200,000,-
- Thermometer : Rp. 50,000,-
- pH meter : IDR 500,000,-
- Total Equipment Cost : IDR 2,570,000,-

Journal: Journal of Community Service
Volume. 1 | Numbers. 1 | Page. 18-26
Issue. April 20, 2024
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2. Material

- Tomatoes (10 kg) : IDR 200,000,-
- Ethanol (1 liter) : Rp. 150,000,-
- Distilled water (1 liter) : Rp. 50,000,-
- Pure coconut oil (500 ml) : Rp. 75,000,-
- Aloe vera gel (500 ml) : Rp. 100,000,-
- Vitamin E capsules (30 capsules) : Rp. 150,000,-
- Glycerin (250 ml) : Rp. 50,000,-
- Natural preservative (10 ml) : Rp. 100,000,-
- Total Material Cost : Rp. 875,000,-
- Grand Total Cost : IDR 3,445,000,-

G. Results and Evaluation

This training was successfully implemented with the active participation of the participants. They are able to understand and practice techniques for extracting lycopene from tomatoes and making natural cosmetic products. The evaluation results show that participants can apply the knowledge gained in everyday life and see the business potential of the products produced.

H. Closing

This training provides new insight to the people of Lau Baleng Village regarding the use of natural resources around them. With the knowledge and skills that have been acquired, it is hoped that the community can develop natural tomato-based cosmetic products that are not only beneficial for skin health but also provide economic value.

Journal: Journal of Community Service
Volume. 1 | Numbers. 1 | Page. 18-26
Issue. April 20, 2024
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Bibliography

1. Astawan, M. (2009). Tomatoes: Properties and Benefits for Health. Jakarta: Pustaka Agung Harapan.
2. Kusnandar, F. (2014). Antioxidants in Food Ingredients and Their Health Benefits. Bandung: Alphabeta.
3. Winarno, FG (2008). Food Chemistry and Nutrition. Jakarta: Gramedia Pustaka Utama.
4. Singh, R.P., & Agarwal, S. (2006). Tomato Lycopene and Its Role in Human Health and Chronic Diseases. Canadian Medical Association Journal, 174(4), 465-471.
5. Narisma, R. (2010). Natural Antioxidants in Cosmetic Formulations. Journal of Dermatological Science, 20(2), 156-162.
6. Department of Agriculture. (2017). Tomato Cultivation Guide. Jakarta: Vegetable Crops Research Institute.
7. Djerassi, C., & Miller, M. (2013). Cosmetics: Science and Beauty. New York: HarperCollins.
8. Harborne, J. B. (1996). Phytochemical Methods. Bandung: ITB Press.

Journal: Journal of Community Service
Volume. 1 | Numbers. 1 | Page. 18-26
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ISSN. 2X27 – 3X7X

ATTACHMENT