International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 1, 2020
ISSN: 1475-7192

# FORMULATION AND EVALUATION OF SHEET MASK FROM RED RICE (Oryza nivara) EXTRACT

Anggun Hari Kusumawati[1], Neni Sri Gunarti[2], Dadan Ridwanuloh[3], Hari Supriadi[4]

***ABSTRACT---****Sheet mask can moisturize the skin because of the sheet mask contained essence in the can help to moisturize the skin on the face, sheet mask is also very suitable for those who have dry skin. Sheet Mask from Red Rice (Oryza nivara) extract is to help skin care to rejuvenate facial skin from sun exposure after a day of activities. Facial masks have the ability to cleanse the skin to a deeper layer that cannot be reached with regular washing. Masks are useful for tightening, improving blood circulation, smoothing the skin, moisturizing the skin and refreshing the skin. Extraction is done by cold or maceration method. The extraction result from 4,300 kg of Red Rice Simplicia (Oryza nivara), obtained by the ethanol extract of Red Rice (Oryza nivara) as much as 73.85 g., With a yield of 1.7174%. Phytochemical screening is carried out which includes the identity of extracts, organoleptic extracts and phytochemical screening.Based on the results of testing the physical properties of sheet mask preparations, which consist of organoleptics, pH testing, viscosity testing, homogeneity testing of each formula, the essense sheet mask preparations are getting thicker viscosity when Carbopol concentration is added. The pH value of brown rice sheet mask preparations on all formulations by showing skin pH is around 4.5 - 6.5. The higher the concentration of the Carbopol gelling agent the higher the viscosity value. As in the table with formulation (F1) the viscosity value is higher than the viscosity value of the formulation (F2) and (F3). Based on the analysis that has been done on the preparation of red rice essense sheet mask (Oryza nivara) it can be concluded that all formulations produce good physical properties.*

***Keywords****: RED RICE (Oryza nivara) EXTRACT, rejuvenate facial skin, sun exposure*

## I. INTRODUCTION

The use of cosmetics is indispensable for a person from infancy to old age, no exception men and women with the aim of getting healthy skin, beautiful face, good personal appearance and confidence in yourself. Cosmetics has been known by humans since centuries ago, so as the development of science about cosmetology many scientists develop dermatology in order to know the effects of an ingredient on the skin, because at this time there are many cases of new diseases that arise due to the choice of cosmetic ingredients that can irritate skin such as red spots, burning sensation and burning when exposed to direct sunlight (2).

Brown rice (Oryza nivara) which has phenolic which is widely available in brown rice. One of the phenolic groups that have antioxidant benefits is the group of flavonoid compounds (3). These flavonoids make bleaching agents by inhibiting melanin growth. Sheet masks are masks that are in demand by most people by young people, in addition to their practical

[1]*Faculty of Pharmacy, Buana Perjuangan Karawang University, Karawang*[1,2,3]
*Widyatama University*[4]
*Corresponding Author: Anggun Hari Kusumawati M.Si.,Apt,.*
*E-mail: anggunhari@ubpkarawang.ac.id*

use and give a faster effect. Sheet mask can moisturize the skin because of the essence that is on the sheet mask that can help moisturize the skin on the face, sheet mask is also very suitable for those who have dry skin.

Brown rice has several advantages compared to white rice. One of the advantages is that there are many phenolic compounds found in brown rice. Phenolic compounds have a very large spectrum or types, ranging from simple phenolic compounds to complex compounds that bind to the glucose group as glycons. One group of phenolic compounds that have antioxidant benefits is the group of flavonoid compounds. This group of compounds is divided into several groups including flavone, flavone-3-ol, flavonone, flavan-3-ol and antocyanidin (3). Flavonoid group compounds such as anthocyanins (the glycone form of anthocyanidins) are one of the natural material groups in plants that act as antioxidants, antimicrobials, photoreceptors, visual attractors, feeding repellants, antiallergies, antiviral and anti-inflammatory (3). This compound is thought to be responsible as a substance that gives color to brown rice.

## II. METHODS

***Extraction Procedure***

Brown rice (Oryza nivara) is mashed and then sieved, after sifting then the rice is weighed using 200 gram scales, then put into chocolate or maceration bottles, soak brown rice with 96% ethanol in a ratio of 1: 5, soak for 24 hours while occasionally in stir, after 24 hours then strain using an electric vacuum, then soak again using ethanol 96%. repeat the treatment until you get a clear extract. After getting the extract, extract it in the evaporator (Eyela OSB-2100), after the evaporator (Eyela OSB-2100) extract it in a water bath (Memmert WNB22) to get a thick extract.

***Procedure for preparation of preparations***

Carbopol was dissolved in 50 mL and then crushed in a mortar until homogeneous, then CMC-Na was dissolved in 50 mL then ground in a different mortar until crushed. Na-benzoate is dissolved in glycerin and red rice extract is dissolved in propylene glycol. Then put Carbopol in a glass beaker with CMC-Na for homogenizer (WiseTis HG-15D) in order to make homogeneous preparations, after that add Na-benzoate that has been dissolved by glycerin and red rice extract that has been dissolved by propylene glycol.

***Physical Evaluation Test Sheet mask preparations***

Observation can be seen directly, namely the color, aroma and texture of the brown rice essense sheet mask (1).

***Homogeneity Test***

By using a glass object, the preparation is squeezed with two glass objects and ensures that the preparation is homogeneous in the absence of coarse grains (1).

***pH test***

PH measurement is carried out using a pH meter, each formula must meet the pH range with a range corresponding to the pH of the skin which is 4.5-6.5 (5). By using a pH meter. The instrument is calibrated first using a neutral pH buffer (pH 7), then the electrodes are washed with aquadest and dried with a tissue, then the electrodes are dipped in preparations then observe the resulting pH.

***Viscosity Test***

By using a viscometer (lamy Rheologi First Touch 15.04.T F016), the essence is inserted into the beaker glass then set the spindle and speed used, then the viscosity value of the sheet sheet essence essence will come out.

***Irritation Test***

The irritation test was carried out on 30 volunteers to find out if the essence preparations made can cause redness of the skin and itching on the skin. According to (6) irritation testing is done by rubbing behind the ear, then left for 24 hours and see the changes that occur in the form of redness, itching and coagulation on the skin.

***Favorite Test***

The joy test, which is carried out by 20 volunteers, will assess the aroma, color, and shape of likes and dislikes.

## III. RESULTS

***Phytochemical Screening***

Table 1. Phytochemical Screening

| Compound Group | Results |
|---|---|
| Alkaloid | - |
| Flavonoids | + |
| Saponin | + |
| Tanin | - |
| Polyphenolate | + |
| Kuinon | - |

Note:

(+) = Contains the group of compounds tested

(-) = Does not contain the class of compounds tested

**Formula**

Table 2. Formula

| Material | Concentration % b/v | | | Function | *Range* |
|---|---|---|---|---|---|
| | F1 | F2 | F3 | | |
| Red Rice | 0,5 | 0,5 | 0,5 | Active Oharmaceutical Ingredients | |
| Na-CMC | 0,3 | 0,3 | 0,3 | Rheology Regulator | |
| Carbopol | 0,35 | 0,3 | 0,25 | Pengatur Rheologi | 0,5-2,0% |
| Glycerin | 5 | 5 | 5 | Humectan | ≤30% |
| Propylene Glycol | 10 | 10 | 10 | Humectan | < 15% |
| Sodium Benzoate | 0,1 | 0,1 | 0,1 | Preservative | 0,1-0,5% |
| parfume | qs | qs | qs | Fragrance | |

| | | | | |
|---|---|---|---|---|
| Aquadest | Add 200 | Add 200 | Add 200 | Solvent |

***pH***

Table.2 pH test results

| | **Uji pH** | | |
|---|---|---|---|
| | **F1** | **F2** | **F3** |
| | 4,72 | 4,81 | 4,86 |
| | 4,76 | 4,79 | 4,87 |
| | 4,77 | 4,80 | 4,88 |
| **Rata-rata** | 4,75 | 4,80 | 4,87 |
| **SD** | 0,026 | 0,01 | 0,01 |

Note:

1. (F1) concentration of gelling agent Carbopol 0.35%
2. (F2) concentration of gelling agent Carbopol 0.3%
3. (F3) concentration of gelling agent Carbopol 0.25%

***Viscosity***

Table.3 Viscosity results

| | Viscosity (Cp) | | |
|---|---|---|---|
| | F1 | F2 | F3 |
| | 264,2 | 210,2 | 177,7 |
| | 240,1 | 208,4 | 171,6 |
| | 212,9 | 186,0 | 150,1 |
| Rata-rata | 239,0 | 201,5 | 166,4 |
| SD | 25,6 | 13,4 | 14,4 |

Note:

1. (F1) concentration of gelling agent Carbopol 0.35%
2. (F2) concentration of gelling agent Carbopol 0.3%
3. (F3) concentration of gelling agent Carbopol 0.25%

***Irritation Test***

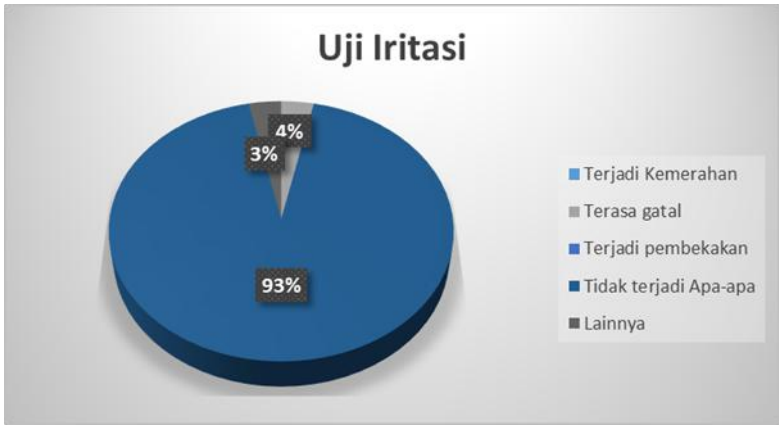


Fig.1 Irritation Test results

***Favorite Test***

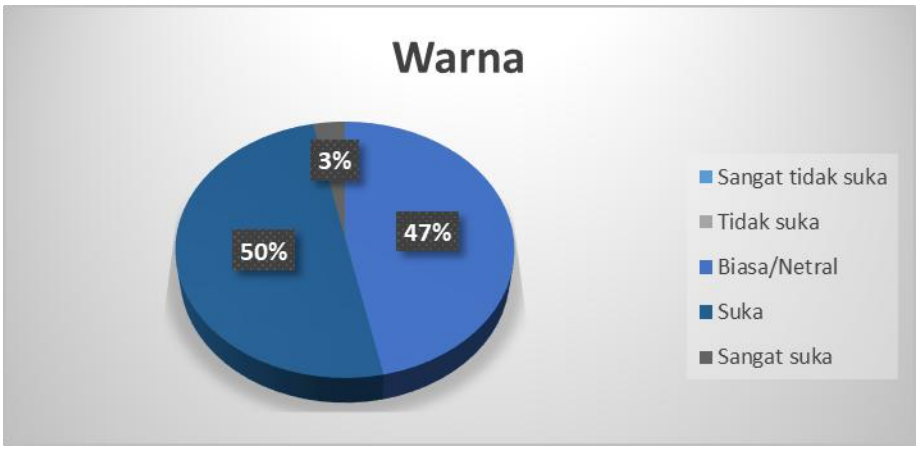


Fig.2 Favorite Test results

## IV. DISCUSSION

PH testing is done to determine the safety of preparations on the skin so as to avoid irritation when applied to the skin. Testing the pH using a pH stick and universal pH, the pH value of the preparation of red rice sheet mask on all formulations by showing skin pH is around 4.5 - 6.5. The higher the concentration of carbopol the more acidic the pH value is owned, as in (F1) with a carbopol concentration of 0.35%, and for (F3) the concentration of the Carbopol gelling agent the lower the pH of the preparation, the more alkaline.

The use of different gelling agent concentrations can produce different viscosity values. Carbopol molecular weight is 7 × 105 - 4 × 109 and CMC-Na has a molecular weight of 90,000 - 700,000 (4). From the molecular weight of each Carbopol gelling agent has a greater molecular weight than CMC-Na so the use of Carbopol gelling agent concentration is very influential on the viscosity value. The higher the concentration of the Carbopol gelling agent the higher the viscosity value. As in the table with formulation (F1) the viscosity value is higher than the viscosity value of the formulation (F2) and (F3).

The irritation test is done by attaching a sheet mask about 2.5 cm in the back area of the telingga or in the area behind the neck for 10-20 minutes. After 10 minutes of wearing, no irritation occurs on the skin, and after 24 hours there are no signs of irritation on the skin such as redness or the presence of skin clots. After 24 hours, there was no irritation in

the respondent, no neck swelling, no redness and no itching after use and after 24 hours. Because the pH of sheet mask preparations has a skin pH. Irrigation testing was conducted on 30 respondents, out of these 30 respondents 93% did not occur or did not experience itching, burning sensation, or freezing. but 4% of respondents experienced slight itching, and for 3% of respondents experienced a slight burning sensation.

Testing this preference is by giving a questionnaire to 30 respondents to assess the smell, color and shape. The preparations tested take from the most optimal formula. Of the 30 respondents, 47% of respondents liked the color of the sheet mask preparations, while 50% chose normal or neutral, and for 3% of respondents very liked the color of the sheet mask preparations. Preference testing with the odor parameters preparation as much as 60% of respondents liked the smell or aroma of sheet sheet preparations, for 33% of respondents chose normal or neutral and for 7% of respondents really liked the aroma or smell of sheet mask preparations. In the texture preference test, 3% disliked the texture of sheet mask preparations, 47% of respondents chose normal or neutral, 47% of respondents liked the texture of sheet mask preparations, and 3% of respondents very much liked the texture of sheet mask preparations.

Based on the results of testing the physical properties of sheet mask preparations, which consist of organoleptics, pH testing, viscosity testing, homogeneity testing of each formula, the essense sheet mask preparations are getting thicker viscosity when Carbopol concentration is added. Because this is due to the increasing number of polymers, because the higher. Based on the analysis that has been done on the preparation of red rice essense sheet mask (Oryza nivara) it can be concluded that all formulations produce good physical properties.

**REFFERENCE**

[1] Ansel, H. C. Pengantar Bentuk Sediaan Farmasi, Edisi Keempat. Terjemahan Ibrahim dan Farida. Universitas Indonesia Press, Jakarta, 1989.
[2] Iswari, T. R. Buku Pegangan Ilmu Pengetahuan Kosmetik. Gramedia Pustaka Utama. Jakarta, 2007.
[3] Jabarullah, N. H., Jermsittiparsert, K., Melnikov, P. A., Maseleno, A., Hosseinian, A., & Vessally, E. (2019). Methods for the direct synthesis of thioesters from aldehydes: a focus review. Journal of Sulfur Chemistry, https://doi.org/10.1080/17415993.2019.1658764.
[4] Rowe, et al.,. Hanbook of pharmaceutical Excipients, sixth edition. The pharmaceutical Press, London, 2009.
[5] Tranggono, Retno Iswari dan Fatma Latifah. Buku Pegangan Ilmu Kosmetik. PT Gramedia Pustaka Utama, Jakarta, 2007.
[6] Wasitatmadja, S. M. Penuntun Ilmu Kosmetik Medik. Universitas Indonesia Press, Jakarta, 1997.