



## RESEARCH ARTICLE

### DESIGN AND EVALUATION OF WATER- MELON RIND EXTRACT CREAM

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#### ABSTRACT

To formulate and evaluate natural cream from water-melon rind extract to give a smooth texture of cream. The cream was prepared by using the ingredients water melon rind extract, mango butter, watermelon seed oil, white beeswax, borax, light liquid paraffin, chloroform etc by adding the oily phase to aqueous phase resulting in o/w emulsion. Formulations were prepared and various evaluation parameters were studied. Among the various evaluations the pH and spreadability of the formulation was found to be good and can be safely applied to skin.

## INTRODUCTION

The term Cosmeceuticals was introduced in the 20<sup>th</sup> century. The cream can be formulated as an ayurvedic, herbal, or allopathic which are used as per the need for their skin conditions. The cream may be classified as an o/w and w/o type of emulsion. The basic idea of skin care lies deep in the Rigveda, Yajurveda, Ayurveda, Unani and Homeopathic system of medicine. The Importance of Cosmetics helps to enhance our appearance and make us feel more confident. With more cosmetics on the market today than ever before, it becomes obvious to us that they play a great role in our everyday life. Skin is the largest organ in the body and covers the body's entire external surface. It is made up of three layers: epidermis, dermis, and hypodermis. Types of skin includes Normal skin, Sensitive skin, Dry skin, Oily skin and Combination skin

**COSMETICS:** As per Drugs and Cosmetics Act 1940 and Rules 1945 Cosmetics means any article intended to be rubbed, poured, sprinkled or sprayed on, introduced into, or otherwise applied to the human body or any part, for cleansing, beautifying, promoting attractiveness, or altering the appearance, and includes any article for use as a component of cosmetics. Cosmetic is a Greek word kosmetikos which means

to "adorn". Creams are semi-solid emulsions which contain mixtures of oil and water. From cosmetic purposes, pharmaceutical creams have a variety of applications such as cleansing, beautifying, altering appearance, moisturizing etc. to protect the skin against bacterial, fungal infections as well as healing cuts, burns, wounds on the skin.



Fig no. 1. Cream

## WATERMELON

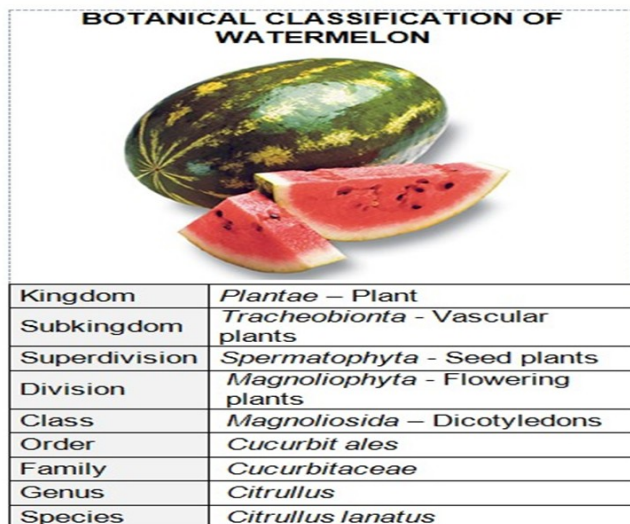


Fig. 2. Botanical Classification of watermelon

## MATERIALS AND METHODOLOGY

**LIST OF MATERIALS:** Watermelon was commercially obtained from local market in Ponkunnam Kottayam district, Kerala. Chloroform, distilled water, borax, white beeswax, light liquid paraffin was obtained commercially and was of analytical grade.

Table No.1 List of materials used for extraction

SL.NO	INGREDIENTS	SOURCE
1	Watermelon rind	Local market, Kottayam
2	Chloroform	Spectrum reagents and chemicals Pvt. Ltd, Edayar, Cochin
3	Distilled water	Hindustan College of Pharmacy, Kanjirappally, Kottayam

Table 2. List of materials used for formulation of cream

SL.NO	INGREDIENTS	SOURCE
1	Watermelon rind extract	Hindustan College of Pharmacy, Kanjirappally, Kottayam
2	White beeswax	Isochem Laboratories, Angamaly, Kochi
3	Borax	Isochem Laboratories, Angamaly, Kochi
4	Light Liquid paraffin	Spectrum reagents and chemicals pvt.Ltd, Edayar, Cochin
5	Mango Butter	ManHar Organics, Shahdara, New Delhi
6	Watermelon seed oil	Greenwood Essential Janakpuri, New Delhi

### List of Instruments and Equipments used

Table No.3 List of Instruments and Equipments used for the extraction and formulation of cream

Sl.No.	Instruments and Equipments	Company
1	Hot air oven	Dinesh scientific, Haryana
2	Magnetic stirrer	We associate, Kochi
3	Microwave oven	We associate, Kochi
4	Centrifuge	Dinesh scientific, Haryana
5	Mechanical stirrer	

## METHODOLOGY

**Collection of watermelon:** Watermelon (*Citrulluslanatus*) was collected from a local market.

**Separation of watermelon rind:** Watermelon cut into pieces and the pulp is removed from the rind. The rind is separated. It is then cut into small pieces.

**Drying of watermelon rind:** The pieces of watermelon rind were dried in a hot air oven for 4hours at 120 degree Celsius.



Fig. 3. Hot air oven

**Extraction of watermelon rind:** The dried rind (5gm) was extracted with chloroform (70ml) and distilled water (30ml) in a magnetic stirrer for 800rpm and 40 degree Celsius. The above mixture was filtered and the filtrate is heated in a microwave oven for 3minutes. The above crude extract was centrifuged at 1000rpm for 10 minutes. Watermelon rind extract is obtained.



Fig. 4. Magnetic stirrer



Fig. 5. Microwave oven

**Spreadability:** Adequate amount of sample is taken between two glass slides and it is applied on the slides for 5 minutes. Spreadability can be expressed as,

$$S = m \cdot l / t$$

Where, m = weight applied to upper slide.  
 l = length moved on the glass slide.  
 t = time taken.

**Irritancy test:** Mark an area on left hand dorsal substance upto (1 Sq cm). The cream was applied to the specified area and time was noted. Irritancy was checked.

**Washability:** The cream was applied on hand and observed under the running water.

**Homogeneity:** All the developed formulations were tested for homogeneity by visual inspection. They were tested for their appearance and presence of any lumps, flocculates or aggregates. Also, qualitative determination of Watermelon rind extract cream was performed by placing the cream between the thumb and index finger and the sample homogeneity or the presence of aggregates was observed.

## RESULTS AND DISCUSSION

Prepared formulation was white in color. It has pleasant odor and smooth texture.



Fig.7. Formulaed cream

**Formulation of watermelon rind cream:** Solid ingredients are melted by indirect heat and then all the oils are added into it and stirred well (oily phase). Borax is dissolved in water with the help of heat (Aqueous phase). While still hot oily phase and Watermelon rind extract is added slowly to the Aqueous phase gradually with constant stirring. Stirring is carried out until a creamy emulsion is formed. Finally perfume is added and cooled at room temperature. Filled in a suitable container and labelled.

Table 4. Formulation table for watermelon rind cream (60 gm)

	INGREDIENTS	QUANTITY
1	Beeswax	20gm
2	Mango butter	5gm
3	Watermelon seed oil	3ml
4	Light liquid paraffin	10ml
5	Borax	1 gm
6	Glycerin	1.6ml
7	Watermelon rind extract	8ml
8	Vitamin E	2ml
9	Rose water	q.s
10	Water	q.s

### EVALUATION PARAMETERS OF CREAM

**Determination of PH:** PH meter was calibrated using standard buffer solution (PH 7). About 0.5g of the cream was weighed and dissolved in 50 ml of distilled water and PH was measured.

**Physical appearance:** The physical appearance of the cream is observed by its color, odor roughness and graded.

Table 5. Physical appearance

SL NO	PARAMETER	EVALUATION
1	Color	White
2	Odour	Pleasant
3	Texture	Smooth

- **Physical appearance:** The physical appearance of formulated cream was judged by color, odor and texture.
- **pH of the cream:** The pH of the cream was found to be in range of 5.6 to 6.8 which is good for skin pH.
- **Spread ability test:** The spread ability test showed that the formulated cream has good spreadable property.
- **Irritancy test:** The formulated cream shows no redness, edema, irritation and inflammation during studies. The formulated cream is safe to use.

- **Wash ability:** The cream applied on skin was easily removed by washing with tap water
- **Homogeneity:** The developed cream was tested for homogeneity by visual inspection for appearance and presence of any lumps, flocculates or aggregates. The homogeneity was found to be good for all formulations.

## DISCUSSION

The present work was the formulation and evaluation of watermelon rind cream. This cream formulation was w/o type of emulsion. Hence this formulation was easily washed with plane water after application. The prepared formulation has good Spreadability and pH of the cream was good. The physical appearances of the cream are white and have a pleasant odor. The cream had a smooth texture. The prepared formulation showed proper pH range that is approximately pH 6; it confirms the compatibility of the formulation with skin secretions. The developed cream was tested for homogeneity by visual inspection for appearance and presence of any lumps, flocculates or aggregates. The homogeneity was found to be good for all formulations. The formulation was nonirritant and not harm to the skin.

## CONCLUSION

From the above results it is concluded that the formulated watermelon rind cream showed good consistency, spread ability and pH during study period of research. The prepared formulation showed proper pH range that is approximately pH 6; it confirms the compatibility of the formulation with skin secretions. From the above study it can be concluded that the watermelon rind cream is safe to use as it is developed from herbal extract. Natural remedies are more acceptable in the belief that they are safer with fewer side effects than the synthetic ones. So, the values of herbs in the cosmeceutical have been extensively improved in personal care system and there is a great demand for the herbal cosmetics nowadays. An herbal cream which is non-toxic, safe, effective and improves patient compliance by the utilization of herbal extracts would be highly acceptable than synthetic ones.

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