

# SYNTHESIS AND MODIFICATION OF RICE BRAN FATTYACID FOR UTILIZATION IN COSMETICS

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## ABSTRACT

The field of cosmetics is fast massive important now a days. The conventional methods of measures required several modifications in harmony to satisfy the necessities of the society. Waxes control constantly been a central ingredient of the cosmetic preparations. Pure and mock waxes are old since an extensive break of time. This study aims to look into the modification of Rice Bran Fatty Acid and its incorporation in cosmetic preparations. Rice Bran Fatty Acid is a by-product generated during refining of Rice Bran Oil industry. In this crude rice bran set was purified processed and was analyzed for its physico-chemical properties it was in preparing a mixture of skin cosmetics. Instinctive waxes are employed since slow phase of time. But studies reveals that Rice Bran Fatty Acid endow with a find emollient make happen as contrasted to put on waxes. One such natural product is Rice Bran Fatty Gel. And the petroleum fractions are use in the cosmetic preparations these days. Due to limited resources they will soon be unavailable for our use. So instead of that we can use Synthesized Rice Bran Gel.

**KEYWORDS:** Synthesized Rice Bran Gel, Rice Bran Fatty Acid, Rice Bran Oil, Cosmetics, Modification methods, Emollient effect.

## INTRODUCTION:

Rice Bran Oil is an inimitable vegetable oil formed from the on the outside russet layer of rice which is universally accepted as Rice Bran are unconcern during processing and polishing of rice in milling industry. Besides having an about ideally balanced fatty acid profile, it is splendid in real antioxidants. A numeral of forbidden systematic studies conducted in India and abroad give and take by far acknowledged the better on cholesterol lowering properties of rice bran oil as contrasted to other conventional vegetable oils. Ashen rice is polished to amputate the over indulgence rice bran oil and reached pet gradation of whiteness. The hull of rice and the rice bran are generated as the by-product of rice milling industry.

Rice Bran Wax expand is obtained from biological source. That expected sourced Oryza-Sativa-family Gramine. And it is copiously available. It is big finding of rice bran oil industry. The increase is reported to be largely Melissly cerotate.

**Table 1 – Components of Rice Bran**

COMPONENTS	%
Protein	15
Oil	18
Ash	7
Carbohydrates Fibre	50
Crude	7
Total Dietary	28
Soluble Fibre	2.4
Insoluble Fibre	25.6

**Table 2 - Physico-Chemical Characteristics of Rice Bran Oil**

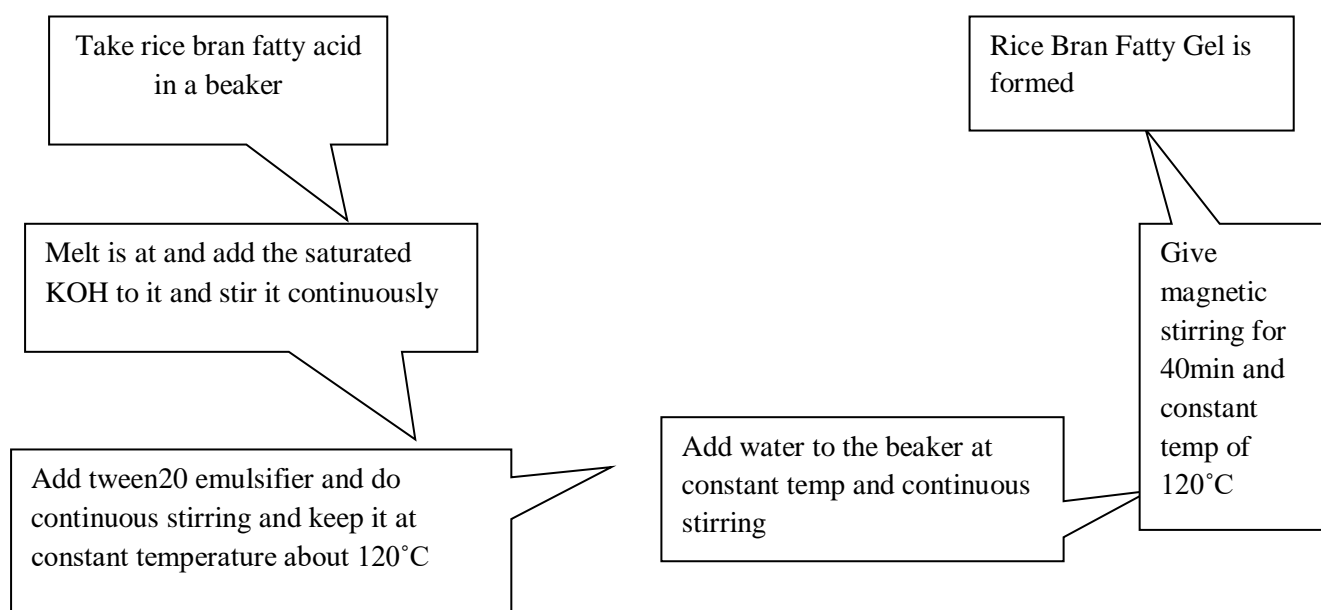
Characteristics	Value Range
Refractive Index at 25°C	1.470-1.473
Specific Gravity at 30°C	0.916-0.91
Saponification Value	180-190
Iodine Value	99-108
Acid Value (Max)	1.2
Smoke Point	213°C
Fire Point	352°C
Cloud Point	17°C

**Table 3 - Fatty acid composition of Rice Bran Oil**

Fatty Acid	% Composition
C14:0 Myristic acid	0.6
C16:0 Palmatic acid	21.5
sC18:0 Stearic acid	2.9
C18:1 Oleic acid (an Omega 9 fatty acid)	38.4
C18:2 Linolenic acid (LA, an Omega 6 fatty acid)	34.4
C18:3 $\alpha$ Linolenic acid(ALA, an Omega 3 fatty acid)	2.2

The literature studies bare that since the 18<sup>th</sup> century a broad span of piece has been ready on the subject matter of cosmetics. During the enormously former attempts, physical oils like almond oils were blended with waxes to yield skin anxiety products. Later, exploitation of mineral oil for the creation of aesthetic food had befitted the trend. But immediately technologists are over again tiresome to swap towards the normal skinned materials.

**EXPERIMENTAL PROCEDURE:  
FLOWCHART**



**Rice Bran Fatty Gel** - About 12 gm of Rice bran fatty acid was heated until the fats were split to form oil. To this 2-3ml of Tween20 emulsifier was added. This reaction mass was then neutralised using 25 ml of saturated KOH. Further 25ml of distilled water was added to the same and the mixture was continuously heated & agitated. This sample was kept undisturbed overnight and was then analyzed the next day. This is ready as rice bran fatty gel.

**Table 4 - Composition of Rice Bran Gel**

Chemicals	Composition
Rice bran fatty acid	40gm
Saturated KOH	15ml
Tween 20	5ml
Water	80ml
Temperature	120 °C
Stirring time	40min

**Vanishing Cream** – The Amount of Gel, Beeswax and Stearic acid are melted together in a mixture in a glass beaker at 70°C and specific amount of NaOH, KOH, water were melted and mixed with neutralised mass to form aqueous phase of vanishing cream, when water disliking phase and water liking phase both at 70°C, water liking phase are added to water disliking phase slowly with continuous stirring till the homogeneous emulsion mixture formed. After complete addition it is allow cooling at 50°C. Other additives such as preserving agents and perfumes were added to this to yield the final product.

**Table 5 - Composition of Vanishing Cream**

Chemicals	Composition
Stearic Acid	15%
KOH	0.5%
NaOH	0.18%
Water	8.5%
Rice Bran Fatty Gel	76%
Preservatives	0.35%
Perfume	0.2%

**Moisturizer Cream** - The specific amount of Beeswax, Rice Bran Fatty Gel, Soft Jelly and Stearic acid were melted together in a beaker and heat at 70°C. The accurate amount of tri ethanol amine, distilled water and glycerol were melted and mixed with neutralised mass to from water phase these content were heated, further all ingredients mixed completely to make water liking phase of moisturizer and neutralised mass to form water disliking phase these content were heated further. All ingredients mixed completely to make aqueous phase of moisturizer. Water liking phase transfer to water disliking phase slowly with continuous stirring in such manner that homogeneous mixture is formed. After the complete addition, the mixture was cooled to about 50°C. Other additives such as preserving agents and perfumes were added to this to yield the final product.

**Table 6 – Composition of Moisturizing Lotion**

Chemicals	Composition
□ <b>Oil Phase :-</b>	(in g)
Stearic Acid	4
Bee Wax	2
Soft Jelly	1
Rice Bran Gel	3
□ <b>Water Phase:-</b>	
TEA	4
Glycerol	3
Distilled Water	27
Preservative	0.15%
Perfume	0.30%

**Lip Humectants** – In these add Rice Bran fatty gel, Beeswax and blend oil. The blend oil is the blend of Kusum oil and coconut oil. Then heat it for 30 min till it melt completely at 90°C. Then add soft jelly and

essential oil are blended together. Other additives such as preserving agents and perfumes were added to this to yield the final product.

**Table 7 – Composition of Lip Humectants**

Chemical	Composition ( in gm )
Rice bran fatty gel	3.5
Beeswax	2.5
Coconut oil	1.5
Kusum oil	2
Essential oil	1.8
Soft jelly	2%
Preservative	0.6%
Perfume	0.3%

### CHARACTERIZATION

1. Moisture contented – Moisture is beauty formulation helps to shelve the skin glib and soft, as anyhow as shining and hale and hearty by retaining dampness in the outmost skin layer. Fill up is a main ingredient in moisturizer for the reason that it helps in combination the ingredients and retains its homogeneity.
2. Gritty Matter – The examination is done to check the presence of solid particles in the formulations.
3. pH – It is the degree of sharpness or alkalinity of a product. The pH collection of person skin is about 5-6. The pH of the skin harvest requirement be near this go hence that they are unhesitatingly acknowledged by the skin.
4. Consistency – Cosmetic preparations are definite by their gooeyness or thickness. Formulating such preparations, therefore, mostly depends upon the requisite end-product consistency, influencing the span of important to use. One needed feature (viscosity) in merchandise change is having an item for consumption that by far squeezes out of a tube and breaks off cleanly after application.
5. Surface tension – Different formulations are definite by their stickiness or thickness. The subordinate the viscosity, the inferior will be the surface tension and more will be its Spreadability.

### RESULTS AND DISCUSSIONS

#### Results of Rice Bran Gel

**Table 8 – Results of Rice Bran Gel**

Test	Prepared Sample	Std. Reference
• Acid value	185	180 – 205
• Sap value	200	190 – 210
• Iodine value	101	98 – 108
• Titration (clear pt.)	29 min	28 min
• Colour	6 max	7 max

## Results of Vanishing Cream

**Table 9 – Results of Vanishing Cream**

Tests	Prepared Sample	Std. Reference
• Appearance	Yellowish white in colour	White in colour
• pH	6	6.1
• Homogeneity a. By visual b. By touch	Homogenous Smooth & consistent	Homogenous Smooth & consistent
• Rubout a. Spreadability b. Wetness	Easily Spreadable Good Good	Easily Spreadable Excellent Excellent
• Type of Smear	Non Greasy	Non Greasy
• Emolliency	No Residue Left	No Residue Left
• Viscosity	25030cps.	27025cps.

## Results of Moisturising lotion

**Table 10 – Results of Moisturizing Lotion**

Tests	Prepared Sample	Std. Reference
• MIV (%)	34.43	26.97
• Gritty Matter (%)	65.57	73.03
• pH	5.79	5.45
• Consistency	Good	Excellent
• Surface Tension(dyne/cm)	14.13	13.69

## Results of Lip Humectants –

Tests	Prepared Sample	Std. Reference
• pH	7	7
• Spreadability	Good	Excellent
• Stability	Stable both at room temp. and also at refrigerated condition	No deformation occurs at refrigerated condition and at room temp.
• Consistency	Well	Excellent

The objective of these discoveries, in concert with several reports on the bio-activity reveals that Rice Bran Fatty Gel is active component. It has proven moisturization and skin barrier enhancing on application. The sample of Vanishing cream, it vanishes and doesn't stay. It is very light and smooth, and keeps face hydrated and radiant. This is very light, doesn't sit on the skin or overload it. When applied on the skin, the moisturising cream had an emollient effect without much oiliness. pH was successfully improved. The product had good flow and was easily spreadable on the skin, and will hydrate it. The formulation of lip humectants, founds to be exhibiting good stability. The formulation stored at refrigerator and room temperature showed similar behaviour during the normal stability test. And it evaluated as having neutral pH.

## CONCLUSION

The objective of these discoveries about was effectively achieved. Altogether the primed samples were steady and homogeneous, and had affable fragrance. The trait psychiatry reveals that their properties were heavy to that of marketable products. At practically on skin, the Rice Bran gel had an emollient effect without oiliness. pH is one of the important assets for any skin heed result was fruitfully enhanced and brought to the permissible limits. The invention had advantageous effect on skin. And was clearly spreadable on the skin, without a deal drag. And its primary try and it can utilize for making many cosmetic product. The gel prepared, ensure the important step to maintain good healthy skin it is safe and more effective very promising active component eco product good formulating properties associated with fatty acid variety of product can be obtained from this researched raw material

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