

## PRODUCTION OF COSMETICS USING INDIGENOUS RAW MATERIALS FROM BENUE STATE OF NIGERIA

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### Abstract

The study produced cosmetics using indigenous raw materials from Benue State. Specifically, the

prototype each of body cream, hair cream and face powder, using the developed recipes, and also determined the acceptability of these three indigenous cosmetics. Two research questions guided the study. Research and development design was adopted for this study. A 9 point sensory hedonic standard scale by Peryam and Pilgrim (2005) for sensory evaluation of food, cosmetics and clothing items was adopted and used for data collection. Sensory evaluation test of the produced indigenous cosmetics was carried out by 20 panelist comprising of Home economics lecturers, pharmaceuticals, cosmetologist and chemist, from the University of Nigeria, their judgment was based on the attribute of texture, colour, fragrance, temperature and the general acceptability of the product. The data were analyzed using SPSS version 23 to determine the percentage of degree of acceptance; this was presented in bar charts. The study established three indigenous recipes one for each of body cream, hair cream and face powder. The study also established that indigenous cosmetics are highly acceptable. Based on the results of the study conclusion was drawn that: the indigenous body cream, hair cream and face powder, are highly acceptable by the panel. The study therefore recommended that the production of these indigenous cosmetics should commence on industrial scale. This should be done by cosmetologist, cosmetic industrials and governmental training skills centers in Benue State.

**Keywords:** Production, Cosmetics, Indigenous, Raw Materials, Benue State

### Introduction

Cosmetics are article rubbed, sprayed, dropped, purred, sprinkled on, introduced into, or otherwise applied to the human body (Rannou, 2015). Its functions are for cleansing, protecting, beautifying, promoting attractiveness, or altering the appearance of a person. It is an essential thing that a person needs, to help give an individual's their identity, enhance the best features and cover the blemishes, gives an individual better appearance than natural, also improved body odour (Nicolas and Jacob, 2010).

In the process of making cosmetics, raw materials are required, mostly the raw materials used are either natural or synthetics, and the raw materials to be used depend on the type of cosmetics to be produced. There are different types of raw materials that are used in making cosmetics, these raw materials can be obtained either from foreign or indigenous sources. The foreign raw materials are those one that are imported from other places or countries, while the indigenous ones are those, which originate or belong to a particular place or village (Anyakoha, 2016). These raw materials include a variety of chemicals, fragrances, essential oils thickening, surfactants,

preservatives, colorants and active ingredients. Unfortunately, many of these raw materials according to Klim (2014) are imported to Benue State and Nigeria, from other countries and as such this has put our cosmetologist at the disadvantage of high cost of importation thereby making cost of production very high. Meanwhile, some of these raw materials can be sourced indigenously from plants, animals, natural mineral extractions, chemicals and water.

In this current study, the indigenous raw materials are the raw materials produced locally which are available in Nigeria, specifically in Benue state. Some of these indigenous raw materials had been established by Gera, Chukwuone and Igbo (2019), and Adetoun (2015) to include: Shea butter, coconut oil, palm kernel oil, local chalk, corn flour among others. This study was involved producing cosmetics from indigenous raw materials, and testing its acceptability. Research and development system approach of Gall, Gall and Borg (2007), was adopted for this work, sensory evaluation test was also carried out using 9 point hedonic scale.

The study was focused to produce cosmetics using indigenous raw materials from Benue State, and to determine its acceptability. Specifically, the study;

1. developed recipes and produced indigenous body cream, hair cream and face powder using indigenous raw materials.
2. determined the acceptability of the indigenous cosmetics produced.

The study sought answer to this research question;

1. What is the acceptability level of each produced indigenous cosmetics?

The study was delimited to developing indigenous recipes for body cream, hair cream and face powder, producing one prototype each of the indigenous cosmetics, and determining of acceptability level of the indigenous cosmetics produced.

#### Material and Methods:

500g of Shea butter (Chamen), 2 litres of coconut oil (Kurem ma kyewe), 2 litres of palm kernel oil (Ate), 400g of local chalk (Inyajoo) and 400g of corn starch (Mewem ma kureke), were purchased from local markets in Benue State, these raw materials were lapped in an air tight bag and was transported to the cosmetology section in the clothing and textiles laboratory of University of Nigeria Nsukka, for production. Recipes for producing indigenous cosmetics were developed, using adapted recipes of standard production for each item.

The researcher adapted Soto (2018) recipe for making body creams to develop indigenous recipe, this was done by replacing some of the chemical in Soto's recipes with the indigenous raw materials. The recipe; Paraffin oil 100g, Petroleum jelly 5g, Cetyl alcohol 3g, Sodium lauryl sulphate (S.L.S) 1.5g, Sodium carboxymethyl, 3.8g, and PEG 2000 (polyethylene glycol 2000) 25g.

#### Procedure:-

1. Melt oils with cetyl alcohol at 60°C-70°C using a beaker and hot plate.
2. Heat water to 60°C-70°C adding sodium lauryl sulphate PEG
3. Mix aqueous to oil phase by stirring using a suitable homogenizing machine.
4. Cool and package.

#### Recipe for producing indigenous body cream

Shea butter 100g, coconut oil 50g, palm kernel oil 50g, borax 0.4g, wax 0.2g, color to taste, Perfume to taste and water 30cl.

#### Procedure

1. Light up the cooker, place the pot on top of it.
2. Pour in coconut oil, palm kernel oil, and Shea butter.

3. Add wax into the mixture and stir gradually.

The researcher adapted William and Schmitt(2015) recipe for making face powder to develop the indigenous recipe, this was done by replacing some of the

4. Bring the mixture down. Add any colorant and stir
  5. Add Borax into 10cl of water in the pot and bring to boil, allow it to dissolve
  6. Allow to cool and add into the mixture stir adding water stage by stage.
7. Add perfume. and pour into a container

Recipe for producing indigenous hair Cream

The researcher adapted Butler (2000) recipes for hair cream, the recipes are:

Petroleum jelly 1kg, Paraffin oil 1.8kg,

Mineral wax 0.2kg, Perfume to taste Color to taste, and Vitamin E 1.8kg.

Procedure

1. Light up the cooker and place a pot for mixture on top.
2. Pour in coconut oil, palm kernel oil, shea butter and stir
3. Divide the wax into smaller sizes and add them gradually into the mixer.
4. Allow it to dissolve properly inside the pot and stir continuously.
5. Bring the mixture down. Add any colorant, perfume and stir. pour in containers

Recipe for producing indigenous face powder

The researcher adapted William and Schmitt (2015) recipes for Face powder;

Talc 50g, Zinc 1.2g, Kaolin, 0.3g. Magnesium 0.1g, Carbonate 0.3g, Octyldodecanol 0.2g, and fragrance to taste. Procedure

1. Pour the talc in a laboratory container
  2. Make a space in the middle, and enclose all other ingredient, mix through.
  3. Package in an airtight container
- Recipe for producing indigenous Face Powder

chemical of William and Schmitt's recipes with indigenous raw materials, These includes Corn flour 100g, and Calabash Chalk 1.2g, Kaolin, 0.3g, Fragrance to taste and Color to taste.

#### Procedure

1. Pour the corn starch in a laboratory container
  2. Make a space in the middle, and enclose all other ingredient and mix through
  3. Package in an airtight container
- Determination of the acceptability level of the indigenous cosmetics

To determine the level of acceptability of the indigenous cosmetics a 9-point hedonic standard scale sensory evaluation for testing food, cosmetics and clothing method developed by Peryam, and Pilgrim (2005) was adopted and modify. The 9-point hedonic scale which contains 9 point of scaling units, include 9 for like extremely, 8 like very much, 7 like moderately, 6 like slightly, 5 neither like or dislike, 4 Dislike, 3 Dislike moderately, 2 dislike very much, and 1 dislike extremely, was adopted and modified.

Evaluation Test for the acceptability of the indigenous cosmetics

This was done by a panel of 20 judges comprising of Home economics lecturers, cosmetologist, pharmacists and the chemist, from the University of Nigeria Nsukka. The indigenous, body creams, hair cream and face powder produced were labeled with A, B, and C respectively, these were placed on the table. The panel applied these cosmetics on their body, hair, and face, and indicated the degree of acceptance, basing their judgment on the attributes of colors, texture, temperature, Fragrance and the general acceptability of the indigenous cosmetics.

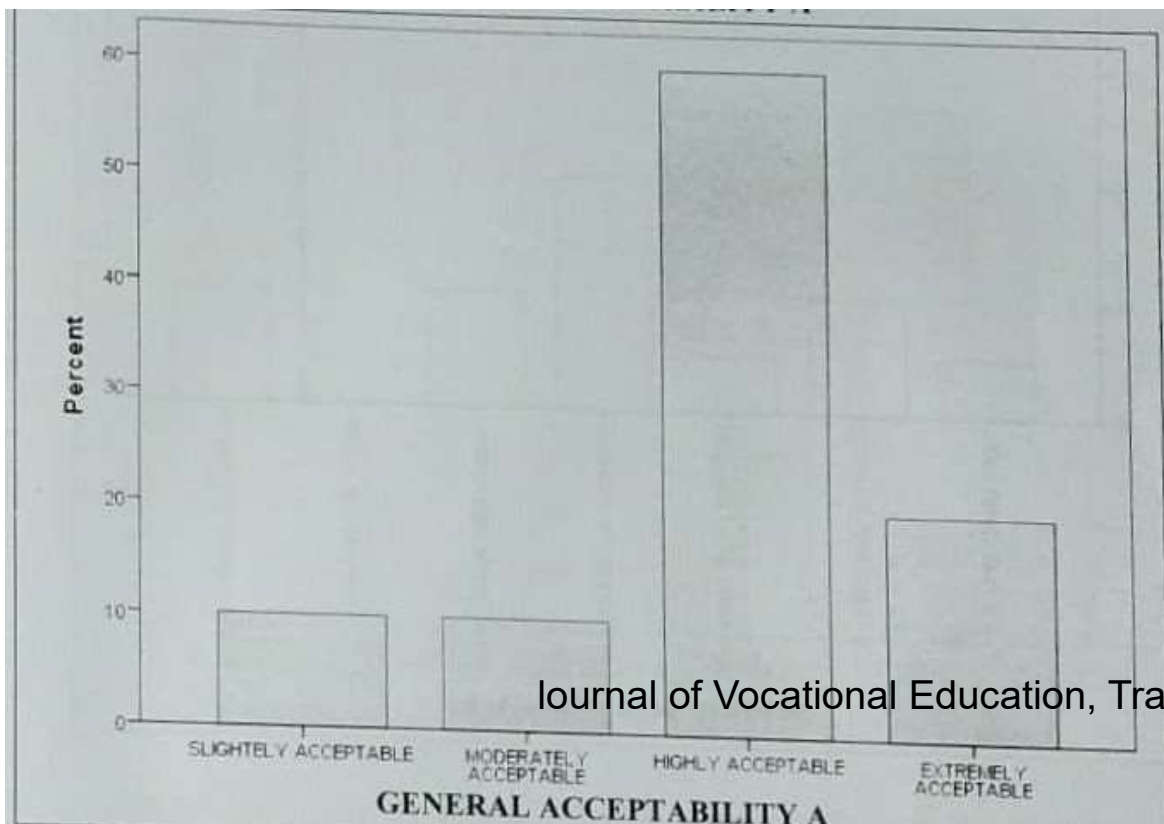
#### Research Question 1:

What is the acceptability level-of the indigenous Cosmetics?

The answers to research question one were presented in bar chart and percentage;

Bar chart presentation of the General acceptability of indigenous Body cream by the panel

### GENERAL ACCEPTABILITY A

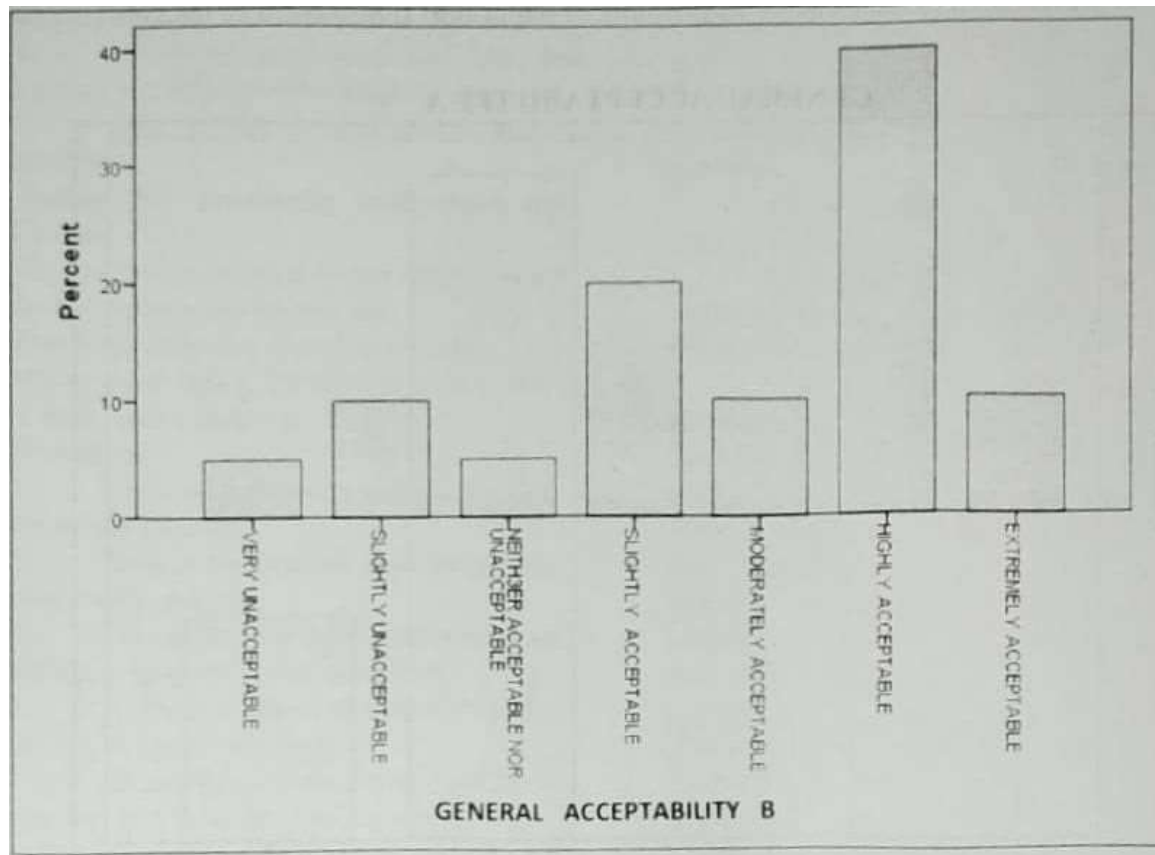


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The bar chart result reveals that 10% of the panel members choose slightly acceptable, 10% selected moderately acceptable. While 60% responded highly acceptable and 20% choose extremely acceptable. This result implies that the produced indigenous body cream was generally accepted by the panel.

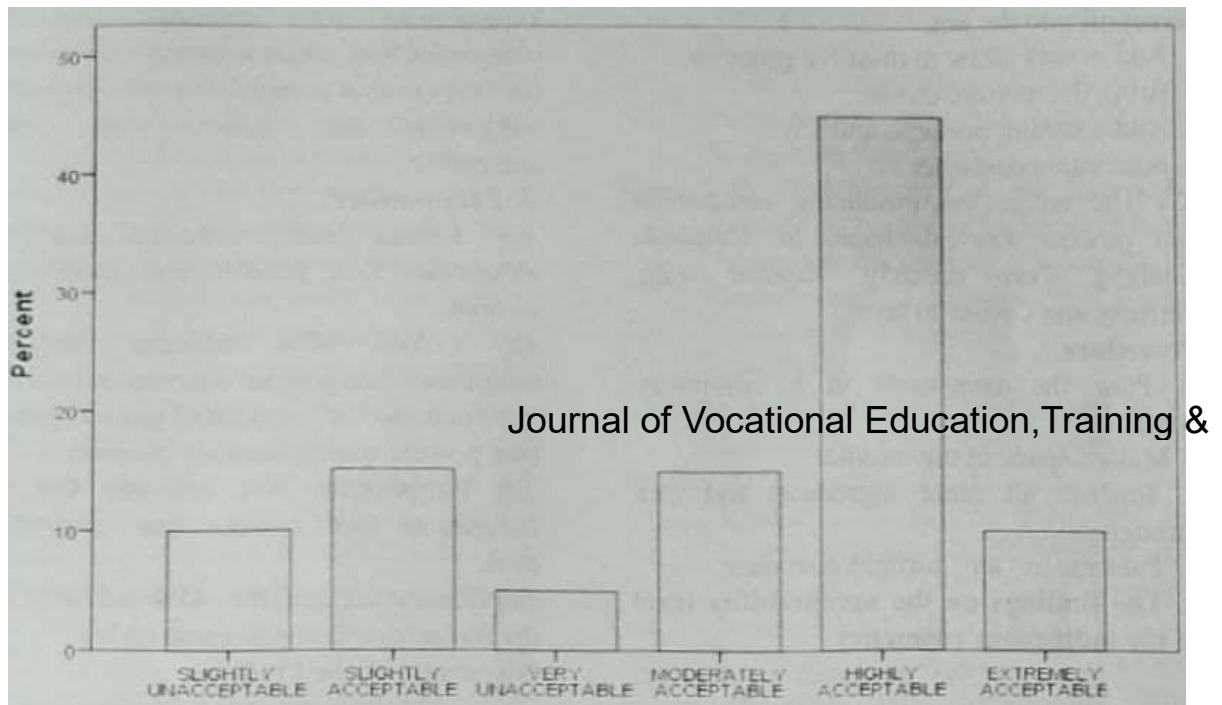
Bar chart presentation of the general acceptability of indigenous hair cream B

### GENERAL ACCEPTABILITY B



The bar chart result reveals that 5% of the panel members went for very unacceptable, 10% choose slightly unacceptable, while 5% were neither acceptable nor unacceptable, 20% were slightly acceptable, 10% selected moderately acceptable, while 40% panel responded with highly acceptable, and 10% choose extremely acceptable. This result implies that the produced indigenous hair cream was moderately accepted by the panel.

Bar chart presentation of the general acceptability of indigenous face powder



GENERAL ACCEPTABILITY C

The bar chart result reveals that 5% of the panel members went for very unacceptable, 10% choose slightly unacceptable, while 15% responded for slightly acceptable, 15% again selected moderately acceptable. 45% went for highly acceptable, and 10% choose extremely acceptable. This result implies that the produced indigenous face powder was highly accepted by the panel.

#### Findings of the Study

The findings of this study were discussed in accordance with the development of recipe, production of body cream; hair cream, face powder and research questions answered one.

1. (A) The recipe for producing indigenous body cream was established as; Shea butter 100g; coconut oil 50g palm

kernel oil 50g, wax 8g; Borax 4g, color to taste, perfume and water 30cl.

#### Procedure

1. Heat a pot on a lighted stove.
2. Pour in coconut, palm kernel and Shea butter.
3. Add wax into the mixture and stir gradually.
4. Bring the mixture down, add colorant and stir.
5. Boil borax into 10cl of water; allow it to dissolve properly inside the pot.
6. Allow to cool and add into the mixture, stir adding water stage by stage.
7. Add perfume, and pour into a container

(B) The recipe for producing indigenous Hair cream was established as; coconut oil 100g, Shea butter 50g, palm kernel oil 50g,



## 2. Hair cream

wax 12g Colour to taste and Perfume to taste.

### Procedure

- 1.Light up the cooker,place the pot on top.
- 2.Pour coconut oil,shea butter and palm kernel oil into the pot.
- 3.Add in wax allow to dissolve properly
- 4.Bring the mixture down.
- 5.Add colorant,perfume and stir.
- 6.pour into a container

(C) The recipe for producing indigenous face powder was established as: Calabash Chalk5g, Corn starch5g, Koaline 0.2g, Perfume and Colour to taste

### Procedure

1. Pour the cornstarch in a laboratory container
- 2.Make a space in the middle
3. Enclose all other ingredient and mix through
4. Package in an airtight container.

2. The findings on the acceptability level of the indigenous cosmetics

Base on the attributes of texture. colour,fragrant,temperature and general acceptability of the produced indigenous cosmetics the following findings were made:

### 1.Body cream,

(a) Texture 65% indicated that the textre was very good,

(b) Colour 30% indicated that the indigenous body cream was very attractive.

(C)Fragrnce 45%,this shows that the indigenous body cream was very pleasant.

(d) Temperature50% indicated that the temperature was very cool.

(e) General acceptability 60%, indicated indigenous body cream was highly acceptable.

(b) Colour 45% indicated that the indigenous hair cream was slightly attractive,

(c) Fragrance 30% indicated that the indigenous hair cream was very pleasant, (d) Temperature 30% indicated that the indigenous hair cream temperature was very cool (c) General acceptability 40% indicated indigenous hair cream was highly acceptable.

### 3.Face powder

(a) Texture 40% indicated that the indigenous face powder was moderately smooth,

(b) Colour 40% indicated that the indigenous face powder was very attractive,

(c) Fragrance 30% indicated that indigenous face powder was moderately pleasant,

(d) Temperature 30% indicated that the indigenous face powder was moderately cool,

(c) General acceptability 45% indicated that the indigenous cosmetics was highly

### Discussion of the Findings

The findings of the developed recipe and the procedure for making Body cream, Hair cream and Face Powder reveals Shea butter, Coconut oil, and Palm kernel oil, perfume, color, borax, wax and water. This recipe agreed with Nurah et al (2017) who noted that coconut is an essential material for making creams. It is an effective moisturizer on the skin and hair; according to him coconut benefit to the body is comparable to that of mineral oil, it prevents dryness of the hair. This recipe, work also in line with Imoisi et al (2015), who noted that palm kernel oil is an ingredient for making cosmetics that is soft and glossy, Dean et al (2004) also confirmed the use of calabash chalk in cosmetics that, it is grounded into fine powder and applied to the face to make the face remain dry.

The result findings of research question 2 agreed with the stipulations of guide book for export to Japan (2011), which

stated that the recognizes characteristics of cosmetic, is having fragrance to reduced unpleasant odors, smooth enough to prevent skin clapping, wrinkles and to make skin soft, the indigenous cosmetics was determine to have acceptable fragrance and texture by the panel. It is therefore meet Japan standard. The result also Concorde with Dablonski (2006) who affirm that natural hair care products promote the hair re-growth, proves the texture and make it soft and to look gorgeous, the indigenous cosmetics are natural in nature. Based on the findings of the present study, conclusions were drawn that; the indigenous body cream, hair cream and face powder, are highly acceptable by the panel. The study therefore recommended that the production of these indigenous cosmetics should commence on the industrial scale. This should be done by cosmetologist, cosmetics industrials and government training skills centers in Benue State.

#### Conclusion

Based on the results of the study conclusion was drawn that, the indigenous body cream, hair cream and face powder, were highly acceptable by the panel.

#### Recommendation

The study therefore recommended that the production of these indigenous cosmetics should commence on industrial scale. This should be done by cosmetologist, cosmetic industrials and governmental training skills centers in Benue State

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