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Formulation and Evaluation of Herbal Hair Serum Containing Oryza Sativa(Rice) and Psidium Guajava(Gauva) Leaves Extract for Enhancing Hair Quality

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Abstract: *Hair care is an crucial aspect of personal grooming, and the demand for natural and herbal hair care products has drastically extended because of consumer choice for merchandise with minimum aspect results. This examine focuses on the system and assessment of an natural hair serum incorporating extracts of Oryza sativa (rice) and Psidium guajava (guava) leaves, which might be traditionally known for his or her useful houses in promoting hair fitness. The purpose is to increase a safe, powerful, and herbal hair serum to decorate hair pleasant, lessen hair fall, and enhance scalp nourishment.*

Oryza sativa, generally called rice, consists of essential bioactive compounds which includes amino acids, antioxidants (such as ferulic acid), nutrients (like nutrition E), and minerals which can be known to strengthen hair follicles, sell hair growth, and add shine and smoothness to the hair. Psidium guajava (guava) leaves are wealthy in flavonoids, tannins, and crucial vitamins together with nutrition C, that have antimicrobial, antioxidant, and anti-inflammatory properties that assist lessen dandruff, stimulate hair growth, and enhance normal scalp fitness..

Keywords: Hair serum, Chemical free, Natural remedy, Oryza sativa (rice), Psidium guajava (guava)

I. INTRODUCTION

Herbal hair serums have won recognition as herbal alternatives for selling hair increase, strengthening hair follicles, and improving scalp fitness. Rice water and guava leaf extract are robust herbal substances known for their nourishing and healing effects on hair. This observe makes a speciality of formulating a natural hair serum incorporating those elements to decorate hair fine, reduce hair fall, and provide hydration.

Hair performs a critical function in an person's appearance and self-confidence. However, factors which includes pollutants, strain, negative nutrition, excessive use of heat styling tools, and chemical remedies make contributions to hair damage, hair fall, and scalp-associated troubles. This has caused an elevated demand for herbal hair care formulations, which give powerful answers with out the dangerous consequences of artificial chemicals.Among natural remedies, rice water (Oryza sativa) and guava leaves extract (Psidium guajava) had been widely identified for their hair-nourishing houses. Rice water has been historically used in Asian cultures for promoting long, sturdy, and healthful hair.

Objectives:

- To provide vital nutrients that enhance hair electricity, reduce breakage, and decorate shine.
- To stimulate hair follicles the usage of natural herbal extracts that inspire wholesome hair boom.
- To reduce hair loss by using strengthening the hair roots and enhancing scalp flow.

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- To hold a wholesome scalp by means of addressing dandruff, dryness, and inflammation with natural antimicrobial and anti-inflammatory.
- To enhance hair hydration and save you dryness using herbal oils and natural extracts.

Plant Profile:

Parameter	**Information**	
Drug Name	Rice	Gauva
Image		
Scientific Name	Oryza sativa	Psidium guajava
Taxonomical classification	Kingdom: Plantae Phylum: Tracheophyta Class: Liliopsida Order: Poales Family: Poaceae Genus: Oryza Species: Oryza sativa	Kingdom: Plantae Phylum: Tracheophyta Class: Magnoliopsida Order: Myrtales Family: Myrtaceae Genus: Psidium Species: Psidium guajava
Uses	Anti-dandruff, anti-inflammatory, and anti-oxidant, digestive health, traditional remedies, skin and wound healing.	Anti-inflammatory, anti-oxidant, anti-microbial and anti- bacterial, Weight loss, skin health, digestive health, blood sugar regulation, anti-aging.

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MATERIAL AND MATHODS:

FORMULA - Table1: Formulation of Serum

Ingredients	**F1 Batch Oryza Sativa: Psidium Guajava 50ml**	**F2 Batch Oryza Sativa: Psidium Guajava 50ml**	**F3 Batch Oryza Sativa: Psidium Guajava 50ml**
Oryza Sativa	10ml	15ml	15ml
Psidium guajava	15ml	10ml	15ml
Aloe vera	5ml	3ml	3ml
Rose water	5ml	3ml	2ml
Distilled water	q.s.	qs	qs
Almond oil	1-2 drops	1-2 drops	1-2 drops
Methyl paraben	0.1g	0.1g	0.1g
Tween 80	2-3 drops	2-3 drops	2-3 drops

Procedure:

1. Collection of guava leaves and rice grains, Washing and drying of plant substances
2. Powdering of dried materials and starting the Extraction method the use of decoction method three.
3. Filtration of extracts and Addition of aloe vera gel, almond oil and methyl paraben in pattern extract
4. Add distilled water and extent make upto 50 ml
5. Continuously stirring by means of the usage of magnetic stirrer
6. Addition of preservatives and emulsifier with repeated stirring.
7. Heating the Final mixing sample and Filling into boxes
8. Labelling and garage at a room temperature

Evaluation Tests:

Phytochemical Evaluation:

Take the extract and carry out numerous phytochemical evaluation checks, such as alkaloid check, saponin test, foam check, and others.

Organoleptic Evaluation:

All substances had been evaluated primarily based on their physical houses, inclusive of colour, odour, and flavour.

Sr No.	Organoleptic Characters	F1 Batch	F2 Batch	F3 Batch
1	Colour	Dark Brown	Brown	Light Brown
2	Odour	Aromatic	Aromatic	Aromatic
3	Apperance	Clear	Translucent	Slightly turbid

Table No. 2: Organoleptic Parameters

3. Physicochemical Evaluation:

1) pH Determination :

The pH willpower of serum by the use of Auto pH Meter :

Procedure-

a)Buffer Preparation:

Prepare 30 mL of buffer answer for every focused pH by using appropriately blending the specified volumes of pre-organized stock solutions.

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B)Equilibration:
Allow the freshly prepared buffer answers to stand undisturbed for 15 mins to attain equilibrium.
C)pH Measurement:
Measure the pH of every equilibrated buffer solution using an automatic pH meter, following the same old working strategies (SOPs) to make certain accuracy and consistency.

2)Viscosity :

Measuring viscosity of serum the usage of a Brookfield viscometer :
Procedure-

a)Sample Preparation:
Carefully switch the sample into the viscometer's container, making sure it's far unfastened from air bubbles and that the volume is sufficient to absolutely immerse the spindle to the desired depth.
B)Instrument Setup:
Select and fix the ideal spindle to the viscometer. Set the tool to the required rotational velocity (RPM) based totally on the nature and anticipated viscosity of the sample.
C)Temperature Stabilization:
Ensure the sample has reached and is maintained at the preferred temperature earlier than starting up the size method.
D)Measurement:
Gently decrease the spindle into the sample and start the viscometer. Allow the spindle to rotate until a stable viscosity analyzing is obtained.
E)Recording Results:
Note the viscosity reading displayed at the display and document the value in centipoise (cP).

3) Microbial Stability :

a) Inoculation:
Take a measured quantity of the serum sample and inoculate it without delay with the required check microorganism under aseptic conditions.
B) Incubation:
Incubate the inoculated sample at 37.5 °C for forty eight hours to permit potential microbial boom.

C) Observation:
After the incubation length, observe the sample for any visible symptoms of microbial pastime, which includes turbidity, flocculation, or colour alternate.
D) Results:
No flocculation or other signs and symptoms of microbial boom had been discovered in Batch F1, indicating that the serum system remains microbiologically stable.

RESULTS

Table No. 3 Organoleptic Result

Sr No.	Organoleptic Characters	F1 Batch	F2 Batch	F3 Batch
1	Colour	Greenish Brown	Greenish Brown	Greenish Brown
2	Odour	Aromatic	Aromatic	Aromatic
3	Taste	Sweet	Sweet	Sweet

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Table No. 4: Phytochemical Test Results

Sr No.	Phytochemical	Test Used	Observation	Result
1	**Coumarin**	NaOH Test	Yellow colouration disappear	Positive
2	**Flavonoids**	Lead Acetate Test	Yellow ppt formed	Positive
3	**Phenolic acid**	Ferric Chloride Test	Black ppt	Positive
4	**Alkaloids**	Mayers Test Dragendorffs Test	1.Cream coloured ppt 2.Reddish brown ppt	Positive

Table No. 5: Physicochemical Evaluation result

Sr No.	Parameter	F1 Batch	F2 Batch	F3 Batch
1	**Ph determination**	6.35	5.77	5.54
2	**Viscosity**	32 Cp	36 Cp	39 Cp
3	**Microbial stability**	Stable	Unstable	Unstable
4	**Solubility**	Clear	Partial	Slightly

Fig14: Formulation of three batches

PHYSIOCHEMICAL EVALUATION

Table. 6

SRN. NO	PHYSIOCHEMICAL TEST	RESULT
1	**pH Determination**	

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2	**Viscosity**	
3	**Microbial Stability**	

II. CONCLUSION

All formulated hair serum batches complied with ideal method requirements and exhibited desirable bodily properties, including suitable coloration, scent, flavor, density, and viscosity. Among the 3, Batch F1 established the best stability and common performance. It become similarly optimized through addressing the limitations diagnosed in Batches F2 and F3. The progressed components of Batch F1 indicates its ability for further improvement and scalability. Its constant performance, along with confirmed antioxidant and moderate antimicrobial pastime, helps its suitability as a promising and reliable candidate for big-scale manufacturing.

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