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Formulation and Evaluation of Hair Conditioner from Custard Apple (Annona Squamosa) and Curry Leaves (Murraya Koenigii)

Miss. Landge Komal Baliram Prof. Miss. Aswar.A.R. D.R.Hingne .L.D.

Abstract:
Objective: The present study include an formulate an herbal conditioner for an extra smoothening of hair by using custard extract to evaluate I physiochemical, photochemical properties screening properties. The main purpose is to reduce friction between stands of hair to allow easier brushing or combing. It is also evaluated for cleaning action, stability studies and dirt dispersion test.
Material & Methods:
The herbal extract or custard apple powder, curry leaves extract, aloe Vera. Custard apple powder to regulate it inhibits scalp inflammation, preventing hair fall and it is used for smoothening and straightening of hair. After preparing the formulation some physicochemical properties, such PH, foam formation, viscosity, conditioning & wet ability are available and evaluated. The PH of formulated conditioner was in the standard range. The result of its theogram showed thixotrophy property. High foam production and stability were observed. This may due to existence of spooning in custard apple powder. Phytochemical screening was performed. It is also evaluated for eye irritation test, skin sensitization test, dirt dispersion. On the basis of weight ability and conditioning result it can be concluded that, formulated conditioner has a good quality of introducing in the market.
Keywords: *Custard apple powder, Herbal conditioner, curry leaves extract, aloe Vera*

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I. Introduction:

Herbal product has gained increased popularity in the market last decade. However it is used by 20-30% of population. Herbal product are mixture of organic chemical that may come from any raw processed part of plant, including leaves, stem, bark, seed, fruits etc. Herbal preparation is finished herbal product that contains part of plant and other plant part material as active ingredient. In the presence scenario, it seems improbable that herbal hair conditioner although better in performance and safer than synthetic. Ones will be popular with the consumer. A more radical approach popularizing herbal conditioner would be change to consumer's expectation from a synthetic conditioner. With emphasis on efficacy, strategy and safety. Formulators must play active role in educating the consumer about potential harmful effect of synthetic detergents and other chemical additives present in conditioner. There is a strong need to change the consumer perception of good conditioner and the onus lies with the formulators conditioner which are applied to hair after shampooing are intended to promote the property such as:

- Smooth easy combing in wet and dry hair
- A reduction in static electricity caused combing and brushing of hair result in flyaway hair.
- The enhance of gloss and luster of hair

II. Methods and Materials"

- Extraction of plant material was carried out by soxhlet extraction.
- Herbs were collected from 'Aditya medicinal plant garden' and they were authenticated at department of pharmaco gnosy. Aditya college of Pharmacy

For extraction of custard apple flesh take 30 gm of flesh and dry in oven for a ten minutes

- Collected extract is stored in a well closed container.
- Some plant material was purchased from market
- Animal was kept at different places according to group. Swiss albino rats were 6 in numbers and tested for eye irritation test

Sr No.	Plant(Ingredient)	Quantity
1	Custard Apple Extract	15 gm
2	Curry Leaves Extract	10 gm
3	Rose Water	5 gm
4	Aloe Vera	10 gm

1. **Custard Apple**

2. Curry Leaves

3. Aloe Vera

Preparation of Custard Apple Powder:
At first, 20 gm of custard apple flesh & dried in oven for a five minutes. After drying custard apple dry powder of custard apple was collected.
Extraction Process:
The polyherbal is extracted by soxhlet process. The solvent was hydro-alcoholic extraction
Curry Leaves
Aloe Vera Seeds
Formulation of Conditioner:
To formulate an herbal conditioner by mixing of two phases are prepared such as aqueous and oil phase

Part A (aqueous phase)

Sr No	Ingredient	Quantity	Role
1	Custard Apple Powder (Plant Extract)	4 ml	Medicinal Agent
2	Aloe Vera Gel	1 gm	Conditioning Agent
3	Rose Water	0.5 ml	Perfume

Part B (Oil Phase)

Sr No	Ingredient	Quantity	Role
1	Coconut oil	3 ml	Softening Agent
2	Almond oil	3 ml	Smoothening Agent
3	Castor oil	3 ml	Enrichment of scalp

Both the aqueous phases and oil phases were mixed into each other with continuous stirring by using mechanical stirrer. Both the phases are mixed properly and poured into the suitable labeled container.

Evaluation Test:
Dirt Dispersion:
Two drops of container in a large test tube contain 10 ml or distilled water.
1 drop of India ink was added.
The test tube was Stoppard and shakes it 10 times. The amount ink the foam was estimated as none, light, moderate or heavy
Cleaning Action:
5 gm or wool yarn, were placed in a grease after that it was placed in 200 ml of water, containing 1 gm of conditioner in a flask

Temperature of water was maintained 350^0 C. The flask was shacked for 4 minutes for 50 times in a minute.
The solution was removed and sample was taken out
The amount of grease removed by was calculated by
Eye Irritation Test: Animals were collected from animal house
About 1% conditioner was dropped into the eyes of 6 albino with their eyes held open with clips at the lid
The progressive damage to the rabbit eyes on recorded at specific interval over an average period of 4 second

Reaction to Irritant:
1. Swelling of eyelid
2. Inflammation of Iris
3. Ulceration
4. Hemorrhaging and Bleeding
5. Blindness

Conditioning product is well served by objective method to establish their various properties.
The measurement was performed in triplicate and mean value are taken
The experiment was performed at room temperature.

Moisturizing Time Determination:
1 gm of hair ball with approximately of 20 cm^3 size was placed on the surface of 60 ml of different dilution condition and the complete sinking of time of the ball hair in conditioner was measured. 5015 minute required to sink for silky hairs.
Naturally, human and sebum have PH level between 4.5 to 5.5. This actually acidic helps prevent growth of bacteria and fungi on scalp keep their cuticle healthy and standard PH of conditioner is 7-8

Stability Studies:
The thermal stability of formulation was studied by placing in glass tubes and they were placed in humidity chamber at 45^0c and 75% relative humidity.
There appearance and physical stability were inspected for period of 3 months at interval of 1 month PH of prepared condition 7.6

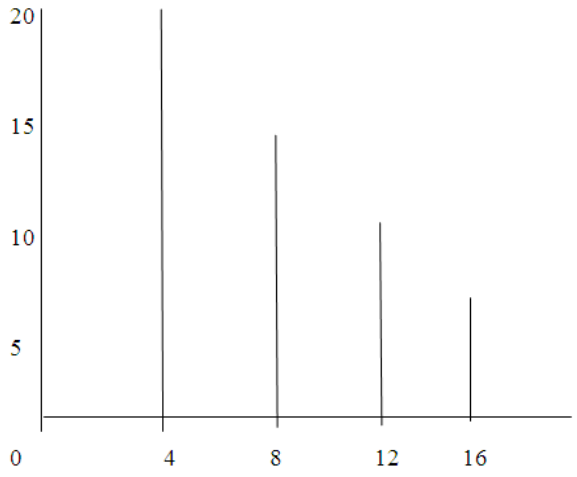
Theology and Experiment:
Rotational spindle book field viscometer (model DV-1 plus LV USA) instrument was used for theology experiment

Conditioning Effect Experiment:
In order to test the conditioning effect of conditioner We had to see how it is easy to comb the hair and to do we had to use a comb connected to spring and scaled page The scaled page was able to display the rate of hare resistance against combing In this method the incoming force on ergo meter caused by moving the comb between hairs before and after using conditioner was measured

III. Result:

The polyherbal conditioner by using the custard apple flesh extract was prepared and evaluated
The moisturizing result is shown in figure which shows that the condition of conditioner increases rate of miniaturization increases.

Table:



Moisturizing Result

PH Result:

Sr No	Product	PH
1	Basic Conditioner	6 to 8
2	Conditioner containing herbal extract	7.6

Phytochemical screening of formulated product:

Sr No.	Tests	Remark
1	Test for Alkaloid	+
2	Test for Flavonoid	++
3	Test for tannin	++
4	Test for mucilage	++
5	Test for resin	-
6	Test for sterol	+
7	Test for glycosides	+
8	Test for carbohydrate	+
9	Test for protein	+

Stability studies of herbal formulation:

Sr No	Parameter	1 Month	2 Month	3 Month
1	Visual appearance	Clear	Clear	Clear
2	PH	7.6	7.6	7.6
3	Solid content	24.51 0.2	25.11 0.2	26.31 0.2
4	Surface tension	33.22 0.02	32.52 0.02	35.20 0.2
5	Detergency ability	52.12 0.1	57.10 0.1	54.11 0.2

1. Custard Apple Hair Conditioner

2. Herbal Conditioner

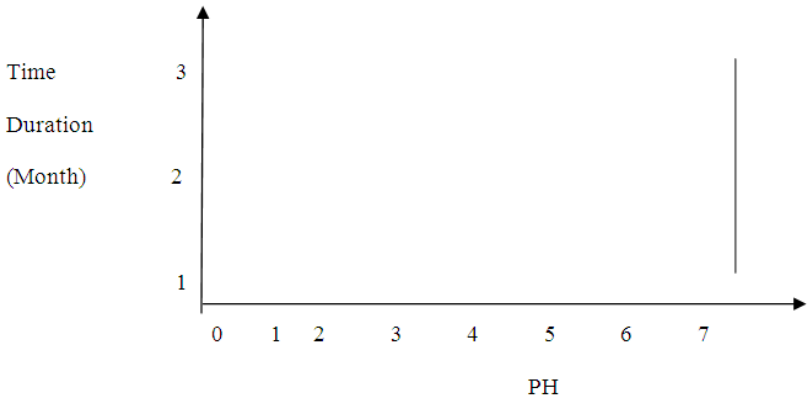
Stability Graphs:

1. Visual Appearance:

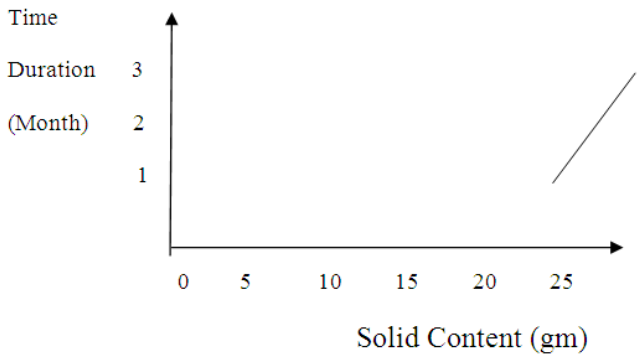
Stability Graphs

Visual Appearance of the, the result of Visual Appearance is checking after one monthIt always clear.

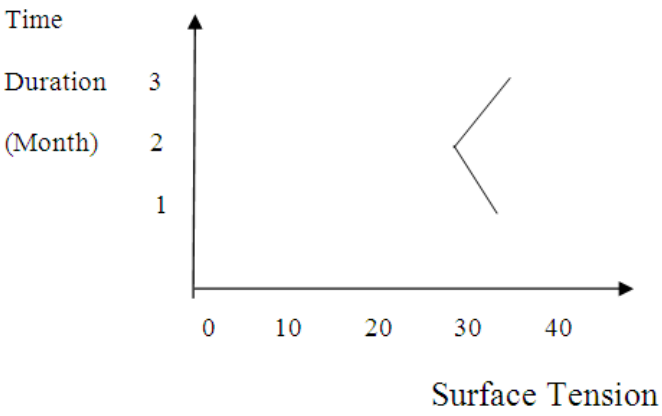
2. PH



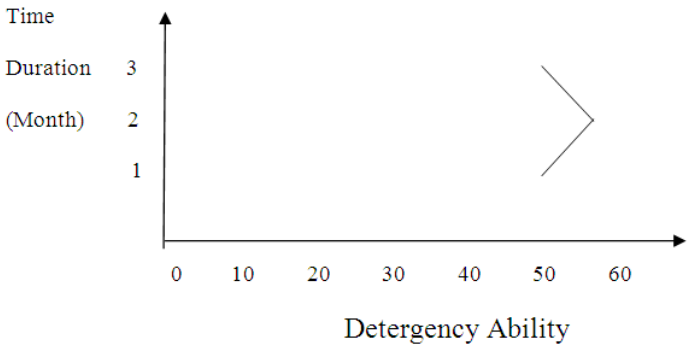
3. Solid Content



4. Surface Tension:



5. Detergency Ability:



IV. Conclusion:

Recent study shows that shine can have profound physiological effect and affect people confidence There is a remarkable number of non approval products for treating hair problems available in the market without any scientific evidence indicating that they are effective product. This research showed that our product has contained herbal formulation and because of that no any side effect are observed as compared to similar product in the market.

The conditioner has sufficient ability for hair conditioning viscosity and rheological properties as playing important role in conditioner. It can influence many of the product attributes such as shelf, its beauty, its transparency, easy removal from its packaging, its expansion and its consistency. The rheological properties of this formulation showed that this formulation has a proper trait. In another word, It has a proper viscosity and if it is exposed to certain cutting speed, shear stress viscosity of the system will be reduced over time consequently. Decrease in their viscosity however our rheogram formulation seems more appropriate in comparison with the sample taken from market As we did not used any viscous substance for making our conditioner, the amount of viscous substance in conditioner is up to 10%. As custard apple powder extract contains viscous component. The use of curry leaves extract is more effective in the formulation for its smooth and glossy effect on the hairs. This study shows that our formulation has suitable moisturizing effect therefore, based on result of strength and moisturizing time our formulation gives more effectiveness.

The hair shining and its glittering are two values for consumer showing stability after using a conditioner. The citric acid used in the formulation for PH of scalp, since custard apple extract powder have protein and carbohydrate compound It is expected that a condition containing custard apple powder makes hair combing very easy Custard apple powder extract contains vitamin and antioxidants and protein. It is important hair strength and softness hydrolyzed protein are important component in a conditioner. Custard fruit flesh extract is an effective herb to reduce hair loss

Curry leaves is very nutritious and very as a result they effective in hair loss, baldness and thin hair Aloe Vera has the ability to eliminate hair loss and hair damage Trigoneline which is present in the custard apple extract is more important for the conditioning of hair. Flavonoids are important for increasing blood cells and they help the blood circulate to all body parts including scalp In this study it was determined that, the conditioner is more comfort for hair combing and smooth and shiny hairs and lack of electricity in hair Based on these and other studies it appeared that the use of herbal conditioner are safer and healthier for smooth and shiny hair.

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