

Formulation and Evaluation of Herbal Face Serum Using *Magnifera Indica* And *Carcia Papaya* And Determination of Antioxidant Activity

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Abstract-

Objective: Formulation and evaluation of herbal face serum using *Magnifera indica* and *Carcia papaya* and determination of antioxidant activity. The main objective of the study is formulation of herbal face serum which is alternate to chemical products.

Methods: In the present study, aqueous extracts of *Magnifera indica* and *Carcia papaya* were subjected to qualitative phytochemical analysis, and the antioxidant activity of these extracts with a formulation of herbal face serum containing essential rose oil was assessed using the DPPH assay.

Result: In this study, the phyto chemical screening, antioxidant activity, Formation and evaluation of face serum are found out in *Magnifera indica* and *carcia papaya* leaves. The formulated herbal face serum has a good aroma, and light green in color. This face serum is base in nature and its pH is 6.2

Conclusion: According to the above studies, the formulated herbal face serum may rectify the problems of skin infections which including *acne vulgari*.

Keywords- *Magnifera indica* and *Carcia papaya*, Antioxidant activity, Phytochemical, herbal face serum

I. INTRODUCTION

Serums is a skin care product containing a gel or lightweight lotion or moisturizing consistency and have ability to penetrates deeper to deliver active ingredients into the skin. A good skin Serum may provide your skin a firmer, smoother texture, make pores appear smaller and increase moisture levels. Whether it is moisturizer, anti-wrinkle or anti-aging product or skin serum, all these products ingredients and skin-identical ingredients.[1] All skin type needs these ingredients to be as healthy as possible. Wrinkles on the face and skin ageing are unfavourable effects of photodamage and UV

radiation. Serum offers quick absorption and the capacity to penetrate deep layers of the skin, as well as a non-oily finish and a deep formula with a high concentration of active ingredients. The goal of this research was to create a serum using *Magnifera indica* and *carcia papaya* leaves extract based on these qualities. Face serum made of highly concentrated beauty product. Face serum made from *Magnifera indica* and *carcia papaya* leaves of is a highly potent cosmetic. When we use we obtain not only immediate beauty effects but also psychological satisfactions because serum has the potential to absorb quickly and enter deeper layers. [2] Common uses for include the treatment of various skin conditions, sunburn, minor cuts, insect bites, and wound healing. It also has anti-inflammatory, anti-bacterial, and anti-fungal properties [3]

II. MATERIALS AND METHODS

Plant Material: Fresh green leaves of *carcia papaya* and *magnifera indica* were collected from Coimbatore (Tamilnadu, India) and used for preparation of extract. The leaves were thoroughly cleaned using distilled water and then the leaves was taken through shade dry for few days. The leaves was fully dried and grained into fine powder then the powder was used for further purpose.



FIG 1: MANGO LEAVES



FIG 2: PAPAYA LEAVES

Extraction

The collected leaves was blended into small pieces. Then, the samples are homogenized and mixed with the solvents (Water) at a ratio of 1:10. The mixture was placed in a 250 mL conical flask covered with aluminium foil or cotton plug. The flask was placed in a rotator shaker for 24 h. The extract was filtered and distilled on water bath until it dried on petri plate A. The crude filtrates obtained were stored in the refrigerator until further analysis. These two extracts were used for the identification of active constituents present in the plant samples.

QUALITATIVE PHYTOCHEMICALS SCREENING

Screening for the presence of active Phytochemicals in mango and papaya leaves was carried out using the standard method (Harborna, 1998)[4]

TEST FOR TANNINS

2 ml of extract was added to 2 ml of distilled water in a test tube and then filtered. A few drop of 0.1% ferric chloride was added to the filtrate. Green precipitate was regarded as presence of tannins.

TEST FOR SAPONINS

To 5ml of extract was added 5ml of H₂O in a test tube. The solution was shaken vigorously and observed for a suitable persistent froth. The frothing was mixed with 3 drops olive oil and shaken vigorously after which it was observed for the formulation of an emulsion.

TEST FOR FLAVANOIDS

A few drop of 10% lead acetate solution was added to 1ml of extract. A yellow coloration indicates the presence of flavanoids

TEST FOR STEROIDS

To 2ml of extract, 2ml of chloroform and two drops of conc H₂SO₄ were added. Reddish brown ring was regarded as positive for the presence of steroid.

TEST FOR TERPENOIDS

To 2ml of extract, 2ml of chloroform con H₂SO₄ were added. A reddish brown coloration of the interface indicates the presence of terpenoids.

TEST FOR PROTEINS

To 1ml of extract, 1ml of conc. H₂SO₄ was added and boiled. White precipitate was regarded as positive for the presence of protein.

TEST FOR GLYCOSIDES

To 2ml of extract, 2ml of chloroform and 2ml of acetic acid were added. Violet to blue to green color was regarded as positive.

TEST FOR PHENOLS

To 1ml of extract, few drops of ammonia solution were added. Reddish orange precipitate formation were regarded as positive.

TEST FOR ALKALOIDS (Hagers test)

To 2ml of extract, few drops of hagers reagent were added and shaken gently to extract the alkaloids base, yellow precipitate was regarded as positive.

TEST FOR XANTHOPROTEINS

To 1ml of extract, four drops of ferric chloride was added. Blue black colouration was regarded as the presence of Xanthoproteins.

TEST FOR CARBOHYDRATES

To 2ml of Extract, 2ml of distilled water, 2 drops of ethanolic alpha naphthol and 2ml of concentrated H₂SO₄ was added. Reddish violet ring.

EVALUATION OF ANTIOXIDANT ACTIVITY DPPH

The stable 1, 1-diphenyl-2-picrylhydrazyl radical (DPPH) was used for determination of free radicals-scavenging activity of the extracts. Different concentration of extract was added, at equal volume, to ethanolic solution of DPPH (100 μ M). After 15 min at room temperature, the absorbance was recorded at 517 nm. The experiment was repeated for three times. Methanol instead of sample were used as standard control. IC50 values denote the concentration of sample, which is required to scavenge 50% of DPPH radicals.[5]

Scavenging activity % = [A518 (blank) – A518 (test)] / A518 (blank)*100.

DPPH assay (2, 2-diphenyl-1-picrylhydrazyl) The radical scavenging activity of different extracts was determined by using DPPH assay According to Chang et al., (2001). The decrease in the absorption of the DPPH solution after the addition of an antioxidant was measured at 517nm

Principle

1, 1 Diphenyl 2- Picryl Hydrazyl is a stable (in powder form) free radical with red color which turns yellow when scavenged. The DPPH assay uses this characteristic to show free radical scavenging activity. The scavenging reaction between (DPPH) and an antioxidant (H-A) can be written as,



Antioxidants react with DPPH and reduce it to DPPH-H and as a consequence the absorbance decreases. The degree of discoloration indicates the scavenging potential of the antioxidant compound or extract in terms of their hydrogen donating ability.

Reagent preparation

0.1mM DPPH solution was prepared by dissolving 4mg of DPPH in 100ml of ethanol.

Working procedure

The sample extracts at various concentrations (100-500 μ g) were taken and 3ml of 0.1mM DPPH was added. The reaction mixture was incubated in dark condition at room temperature for 30 min. After 30 min, the absorbance of the mixture was read at 517 nm. 3ml of DPPH was separately taken as control. The % radical scavenging activity of the anthocyanin containing extract was calculated using the following formula,

Where,

RSA is the Radical Scavenging Activity;

Abs control is the absorbance of DPPH radical + ethanol;

Abs sample is the absorbance of DPPH radical + leaf extract.

FORMATION OF FACE SERUM

To prepare the face serum preparation use the leaves 2:1 ratio of mango and papaya are cleaned with clean water and then leaves were placed at boiling water bath for 10 to 15 minutes then the water gets filtered to obtain extract. Add five drops of essential oil was added with the extraction and prepared, after the mixing of the extraction added fragrance materials for smell. This is the preparation of face serum and taken for test.

EVALUATION OF PREPARED FACE SERUM:

Color and Appearance: The color and appearance of the formulation (aloe Vera face serum) was observed visually which appeared translucent white in color.[6]

Homogeneity: The formulation prepared had even distribution of the extracts made. The homogeneity of the preparation was confirmed visually by the absence of any particulate matter and also feeling the product by touch.

pH of the serum: A pH meter was calibrated using a standard buffer solution. Nearly 1 ml of the serum was properly weighed and dissolved in 50ml of distilled water and finally its pH was calculated.

III. RESULTS AND DISCUSSION

In this study, the phytochemical screening, antioxidant activity, Formation and evaluation of face serum are found out in *Magnifera indica* and *carcia papaya leaves*.

PRELIMINARY PHYTOCHEMICAL ANALYSIS:



Fig. 1: RESULT FOR PHYTOCHEMICAL SCREENING ON PAPAYA EXTRACT

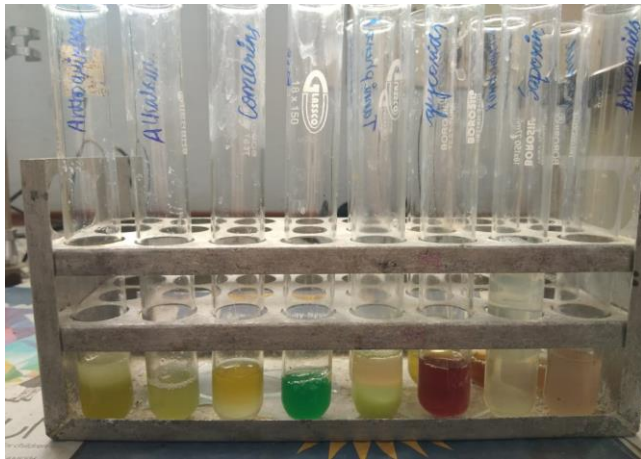


Fig. 2: RESULT FOR PHYTOCHEMICAL SCREENING ON MANGO EXTRACT

Table 1: The result for phytochemical analysis in Papaya extract

S.NO	TYPES OF EXTRACT	AQUEOUS EXTRACT
1	Alkaloid	-
2	Flavanoids	+
3	Saponin	-
4	Glycosides	-
5	Tannin	+
6	Phenols	+
7	Protein	+
8	Amino acid	+
9	Steroids	+
10	Terpenoids	+

Table 2: The result for phytochemical analysis in Mangoextract

S.NO	TYPES OF EXTRACT	AQUEOUS EXTRACT
1	Alkaloid	+
2	Flavanoids	+
3	Saponin	-
4	Glycosides	+
5	Tannin	+
6	Phenols	-
7	Protein	-
8	Amino acid	+
9	Steroids	+
10	Terpenoids	-

The study was carried out in extracts of *Magnifera indica* and *carcia papaya*. In the first step various secondary metabolites from the dried plant ‘s leaves were extracted using aqueous. phytochemical screening of plants revealed some

differences in the constituents in the various metabolites present in aqueous extract.[Table1,2]

ANTIOXIDANT:

DPPH RADICAL SCAVENGING ACTIVITY:



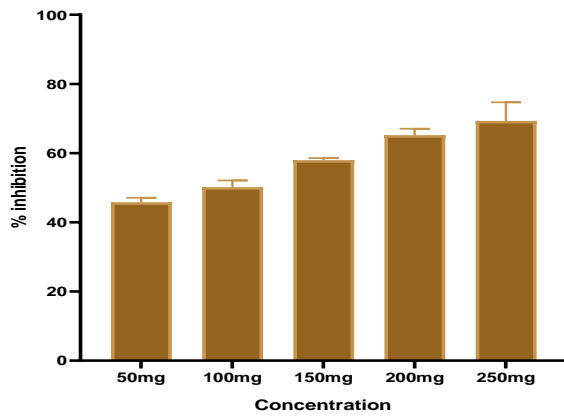
FIG 3: DPPH RESULT ON PAPAYA EXTRACT



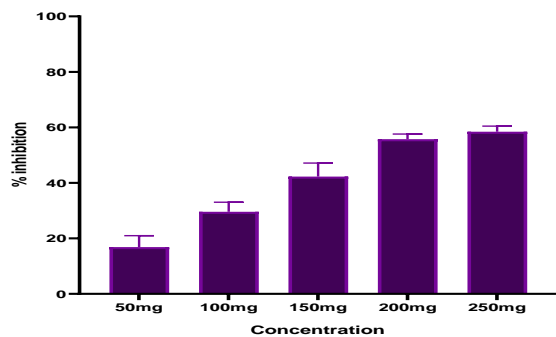
FIG4:DPPH RESULT ON MANGO EXTRACT

Table-3: DPPH radical scavenging activity of the plant samples

S. No	Concentration	Papaya	Mango
1	50mg	45.8 ± 1.3	16.84 ± 4.13
2	100mg	50.17 ± 1.94	29.60 ± 3.42
3	150mg	58 ± 0.56	42.25 ± 4.87
4	200mg	65.21 ± 1.82	55.77 ± 1.81
5	250mg	69.31 ± 5.39	58.45 ± 1.98



Graph-1: DPPH radical scavenging activity of the papaya extract



Graph-2: DPPH radical scavenging activity of the mango extract

HERBAL FACE SERUM:

The mango and papaya leaves are highly containing antioxidant. The benefits of antioxidants for the skin. The transformative benefits include moisturization and brightening of the skin, reduction of fine lines and wrinkles, and alleviation of inflammation and rosacea. Oxidative stress (cellular damage caused by free radicals) is a major cause of skin aging. so we are preparing herbal face serum using the leaves.[fig3,4andTable3]

HERBAL FACE SERUM BY USING *MAGNIFERA INDICA* AND *CARCIA PAPAYA*



EVALUATION OF PREPARED FACE SERUM

Physical appearance: Serum formulation was light green in color, viscous liquid preparation with a smooth homogenous texture and glossy appearance.

pH: The pH of formulation was found 6.2. As the skin having an acidic pH around 4.1-6.7, this range of formulation is suitable for skin.

Globule size determination: The globule size was found to be in range of 0.1-0.3 µm. This range of particles enhance the penetration power of the formulation.

S.NO	PARAMETERS	OBSERVATIONS
1	Colour	GREEN
2	Odour	Characteristic
3	pH	6.2
4	Homogeneity	Good
5	Appearance	Glossy

IV. CONCLUSION

The present study was conducted to formulate and evaluate the face serum using *Magnifera indica* and *Carcia papaya leaves extract*. The phytochemical screening, antioxidant activity where carried out in *Magnifera indica* and *Carcia papaya*. The face serum formulated from *Magnifera indica* and *Carcia papaya* and the characteristics serum were evaluated. This formulated serum can be successfully used for skin infections which including acne vulgaris, after the confirmation of clinical and toxicity studies in future.

V. ACKNOWLEDGMENT

The authors are thankful to the management of Dr.N.G.P Arts and Science college, Coimbatore, Tamilnadu, for providing essential laboratory facilities to carry out the study .

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