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PREPARATION AND EVALUATION OF HERBAL GEL CONTAINING EXTRACT OF CURCUMA LONGA AND THUJA OCCIDENTALIS

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ABSTRACT

As a source of several beneficial secondary metabolites that work as a plant's defence system against predators including microorganisms, insects, and herbivores and have been shown to be potentially active chemicals, plant-based medicines provide a significant addition to current treatments. Due to the microorganisms' resistance to antibiotics, or simply because any antibiotic's useful life is brief, there is a sharp surge in the hunt for antimicrobial plant extracts. The goal of the current work was to create herbal gel formulations with alcoholic extracts of *Thuja occidentalis* and *Curcuma longa*. The hydroalcoholic extracts of the herbs *Curcuma longa* and *Thuja occidentalis* were combined with the polymer carbopol 934 to create herbal gels, which were then tested for physicochemical characteristics like pH, washability, extrudability, spreadability, and viscosity. The gel activity of the formulations (HG F1 - HG F4) was evaluated. The gels were found to be stable and non-irritating by the results.

KEYWORDS: Washability, Extrudability, Spreadability, *Curcuma longa* and *Thuja occidentalis.*

INTRODUCTION

The scientific field of herbal medicine is described as the application of plant-based remedies to treat disease. It is often referred to as phytomedicine or herbal medicine. Due to the lack of antibiotics or analgesics at the beginning of the 20th century, herbal medicine was the primary form of therapy. Herbal medicine steadily declined in favour as the allopathic medical system was used more frequently, and the allopathic medical system's success was founded on the quick therapeutic effects of synthetic pharmaceuticals. The use of herbal medicines has increased dramatically over the past few decades. Nature has always served as

a shining example of the remarkable phenomenon of symbiosis.[1] Approximately 80% of people in underdeveloped nations still rely on traditional medicine, which is mostly based on various plant species, for their primary healthcare today. 800 plants have been utilised in indigenous systems of medicine, and approximately 500 plants with therapeutic benefits are documented in ancient literature. The many indigenous medical systems, including Ayurveda, Siddha, and Unani, use a variety of plant species to treat a variety of diseases that exhibit symbiotic traits.[2]

Skin disorders vary greatly in symptoms and severity. They can be temporary or permanent, and may be painless or painful. Some have situational causes, while others may be genetic. Some skin conditions are minor, and others can be life-threatening. Skin diseases are conditions that affect your skin. These diseases may cause rashes, inflammation, itchiness or other skin changes. Some skin conditions may be genetic, while lifestyle factors may cause others. Skin disease treatment may include medications, creams or ointments, or lifestyle changes. Underlying health conditions may affect your skin, too. Common causes of skin diseases include.[3-4]

- Bacteria trapped in your pores or hair follicles.
- Conditions that affect your thyroid, kidneys or immune system.
- Contact with environmental triggers, such as allergens or another person's skin.
- Fungus or parasites living on your skin.
- Medications, such as the ones that treat inflammatory bowel disease (IBD)
- Viruses.

Historically, the Ayurvedic literature "Sarangdhar Samhita" dated centuries ago in 1300 A. D. has highlighted the concept of polyherbalism in this ancient medicinal system. In the traditional system of Indian medicine, plant formulations and combined extracts of plants are chosen rather than individual ones. It is known that Ayurvedic herbals are prepared in a number of dosage forms, in which mostly all of them are PHF. Due to synergism, polyherbalism confers some benefits which are not available in single herbal formulation.

MATERIALS

Plant materials

Plants of *Curcuma longa* and *Thuja occidentalis* were collected from local area of Dehradun (UK). Plant materials selected for the study were washed thoroughly under running tap water and then were rinsed in distilled water; they were allowed to dry for some time at room temperature. Then the plant material was shade dried without any contamination for about 3

to 4 weeks. Dried plant material was grinded using electronic grinder. Powdered plant material was observed for their colour, odour, taste and texture.

Chemical reagents

All the chemicals used in this study were obtained from Central drug house (p) LT (India).All the chemicals and solvent used in this study were of analytical grade.

METHODS

Phytochemical studies[5]

The Phytochemical investigation of a plant involves authentication and extraction of plant material; qualitative and quantitative evaluations.

Physio-Chemical Constants[6-7]

Shade dried powdered plant materials for used for the determination of the physio chemical constants in accordance with the WHO guidelines.

i. **Determination of ash values:** Ash values are helpful in determining the quality and purity of a crude drug in the powdered form. The residue remaining after incarnation is the ash content of the drug, which simply represents inorganic salts, naturally occurring drug or adhering to it or edibility added to it, as a form of adulteration. Ash value of a crude drug is defined as the inorganic residue remaining after incineration, which compiles of inorganic salts, naturally occurring in drug or adhering to it or deliberately added to it as a form of adulteration. Hence it is used for the determination of the quality and purity of the crude drug in the powdered form.

a. **Total ash:** Total ash method is designed to measure the total amount of material remaining after ignition. They include both physiological ash which is derived from plant tissue itself and non-physiological ash which is the residue of extraneous matter adhering to the plant surface. In this Silica crucible was heated to red hot for 30 minutes and cooled in the desiccators Incinerate about 2 to 3 g accurately weighed, of the ground drug in a tarred silica dish at a temperature not exceeding 4500C until the sample is free from carbon, cooled in desiccators and weighed. The ash obtained was weighed. The percentage of total ash was calculated.

b. **Water soluble ash:** The difference in weight between the total ash and the residue after treatment of the total ash in water. In this Total ash obtained is boiled for 5 minutes with 25 ml of water, insoluble matter were collected in an ashless filter paper, washed with hot water and ignite for 15 min at a temperature not exceeding 4500. Subtract the weight of

this residue in mg from the weight of total ash. Calculate the content of water-soluble ash in mg per gram of air-dried material.

c. **Acid insoluble ash:** The residue obtained after boiling the total ash with dilute hydrochloric acid, the remaining insoluble matters are ignited and measured. This measures the amount of silica present, especially as sand and siliceous earth. In this the crucible containing total ash of the sample, 25 ml of dilute hydrochloric acid is added. The insoluble matter is collected on an ashless filter paper (Whatman 41) and washed with hot water until the filtrate is neutral. Filter paper containing the insoluble matter to the original crucible, dry on hot plate and ignite to constant weight. Allow the residue to cool in a suitable desiccators for 30 minutes and weighed without delay. Content of acid-insoluble ash with reference to the air dried drug is calculated.

ii. **Determination of extractive values:** Extractive values are useful for the evaluation of phytoconstituents especially when the constituents of a drug cannot be readily estimated by any other means. Further these values indicate the nature of the active constituents present in a crude drug.

a. **Determination of water soluble extractive:** 5gm of air dried coarsely powdered sample was weighed and macerated with 100ml of chloroform water (95ml distilled water and 5ml chloroform) in a closed flask for 24 hours. It was shaken frequently for six hours and allowed to stand for rest eighteen hours. It was then filtered rapidly, taking precautions against loss of solvent and 25ml of the filtrate was evaporated to dryness in a tarred flat bottomed shallow dish and was dried at 105°C for 1 hour in the hot air oven and cooled in desiccators for 30min and weighed. The process was repeated till a constant weight was obtained; the percentage of water soluble extractive value was calculated with reference to the air dried drug.

b. **Determination of alcohol soluble extractive:** 5gm of the coarsely powdered sample was weighed and macerated with 100ml 90% ethanol in a closed flask for 24 hours. It was shaken frequently for six hours and allowed to stand for eighteen hours. It was then filtered rapidly, taking precautions against loss of solvent and 25ml of the filtrate was evaporated to dryness in a tarred flat bottomed shallow dish. It was dried at 105°C for 1hour in a hot air oven. The dish was cooled in desiccator and weighed. The process was repeated till the constant weight was obtained. The percentage of alcohol soluble extractive value with reference to the air dried drug was calculated.

c. **Determination of ether soluble extractive:** The type of ether soluble extractive values determined for evaluation of crude drug is volatile and non-volatile ether soluble

extractives. The volatile ether soluble represent volatile oilcontent of drug, while non-volatile ether soluble extractives represent resin, fixed oils or colouring matter present in drugs. The percentage of ether soluble extractive was calculated.

iii. Determination of moisture content

a. Loss on drying: 10 g of the sample substances (without preliminary drying) was taken in a tarred evaporating dish. Use of high speed mill in preparing the samples is avoided. The sample in the tarred evaporating dish was placed in the drying chamber (105°C) for 5 hours and weigh. Drying and weighing is continued every one hour interval until the difference between the two successive sweights is not more than 0.25 percent. Constant weight is reached when the two consecutive weighing after drying for 30 minutes and cooling for 30 minutes in a desiccators, show not more than 0.001 g difference. Percentage moisture content is compared with respect to the air dried sample.

Preparation of extract[8]

Extraction is the preliminary step involved in the phytochemical studies. Based on solvent's polarity metabolites are extracted and according to the solubility of the constituents in the solvent. The method of extraction is maceration method. This is an extraction procedure in which coarsely powdered drug material, either leaves or stem bark or root bark, is placed inside a container; the menstruum is poured on top until completely covered the drug material. The container is then closed and kept for at least three days. We have taken 2 beakers, one beaker for *Curcuma Longa* and the second one for *Thuja Occidentalis* and 50-50 gm of crude drugs are dissolved in 250 ml ethanol. Now after stirring cover the container (Beakers) and keep in room temperature for three days. The extract is filtered for any large particles and then collected.

Qualitative phytochemical analysis[9]

Qualitative analysis for various phytoconstituents in the dried powders and extracts all the raw materials were carried out using different reagents are mentioned below.

a. Detection of alkaloids

Dragendroff's test: The powder/extract was dissolved in 5ml of distilled water, to this 5ml of 2M HCl was added. Then 1ml of Dragendroff's reagent was added and examined for an immediate formation of an orange red precipitate.

b. Detection of glycosides

Bontrager's test: The powdered plant material/extract was boiled with 1ml of sulphuric acid in a test tube for few minutes. The solution was filtered while hot, cooled and shaken with equal volume of chloroform. The lower layer of the solvent was separated and shaken with half of its volume of dilute Ammonia. Formation of a rose pink to red colour in the ammoniacal layer indicates the presence of glycosides.

c. Detection of steroids

Liebermann-Buchards test: The powdered drug/extract was treated with few drops of acetic anhydride, boiled and cooled. Concentrated sulphuric acid was added from the sides of the test tube. If a brown ring is formed at the junction of two layers and upper layer turns green, it shows presence of steroids.

d. Detection of carbohydrates

Molisch's test: To the test solution, few drops of alcoholic alpha-napthol and few drops of concentrated Sulphuric acid were added through the sides of the test tube. Appearance of purple to violet colour ring at the junction indicates the presence of carbohydrates.

e. Detection of phenol

Ferric chloride test: A small quantity of powdered drug/ extract was dissolved in 2ml distilled water and a few drops of 10% aqueous ferric chloride solution was added and observed for appearance of blue or green colour.

f. Detection of proteins

Biuret test: The sample was treated with 5-8 drops of 1% w/w copper sulphate solution and 1ml of 5% sodium hydroxide. If a violet colour is formed it indicates the presence of proteins.

g. Detection of tannins

Lead acetate test: The test solution was mixed with basic lead acetate solution and examined for formation of white precipitate.

h. Detection of saponins

A drop of sodium bicarbonate solution was added to the sample and the mixture was shaken vigorously and left for 3minutes. Development of any honey comblike froth was examined.

i. Detection of Gums and Mucilage

A small quantity of powdered drug/extract was dissolved in 5 to 10 ml of acetic anhydride by means of heat, cooled and 0.05ml of concentrated Sulphuric acid was added. Formation of bright purplish red colour indicates the presence of gums and mucilage.

j. Detection of Fixed Oils and Fats

A small quantity of extract was pressed between two filter papers. An oily stain on filter paper indicates the presence of fixed oils and fats.

Development and Standardisation of herbal formulation[10]

Method for preparation of gel containing extracts (1% w/w)

Different ratio of Carbopol 934 and Methyl paraben was dispersed in hot distilled water with continuous stirring. Cool the solution, then to that added Propylene glycol 400. Further required quantity of prepared leaves extracts were mixed to the above mixture and volume made up to 100 ml by adding remaining distilled water. Finally full mixed ingredients were mixed properly to the Carbopol 934 gel with continuous stirring and tri-ethanolamine was added drop wise to the formulation for adjustment of required skin pH (6.8-7) and to obtain the gel at required consistency.

Table No. 1. Designed formulation code of Herbal Gel (100 ml).

Ingredients	HG F1	HG F2	HG F3	HG F4
Curcuma Longa	1%	1%	1%	1%
Thuja occidentalis	1%	1%	1%	1%
Carbopol 934	0.5%	1%	1.5%	2%
Methyl paraben	0.5%	0.5%	0.5%	0.5%
Polyethylene Glycol	2%	2%	2%	2%
Triethanolamine	2%	2%	2%	2%
Peppermint	0.5%	0.5%	0.5%	0.5%
Distilled water	Qs	Qs	Qs	Qs

Evaluation of herbal gel[11]

a) **Physical appearance:** The physical appearance of the formulation was checked visually which comprised.

Color: The color of the formulations was checked out against white background.

Odor: The odor of the face washes were checked by manually.

b) **Consistency:** The consistency was checked by applying on skin.

c) **Greasiness:** The greasiness was assessed by the application onto the skin.

d) **pH:** An amount of 20 mg of the formulation was taken in a beaker and was subjected to the pH measurement using a digital pH meter within 24 hrs of manufacture.

e) **Wash ability:** Formulations were applied on the skin & then ease & extent of washing with water were checked manually

f) **Homogeneity:** Homogeneity was tested by visual inspection after allowing them to set in a container. They are evaluated for their appearance and presence of aggregates.

g) **Extrudability:** Each standard collapsible aluminium tube changed into full of 20 gm of gel formulation and crimped shut at the end. Weighing becomes used to determine the burden of the tubes. The tubes had been fastened in location between two glass slides. The slides were covered with 500 gm and the cap became removed. The quantity of the extruded gel turned into accrued, weighed and percentage changed into calculated.

h) **Grittiness:** The formulations were evaluated microscopically under 40 x magnifications for the presence of any particulate matter or aggregates.

i) **Viscosity:** Viscosities of formulated gels were determined using Brookfield viscometer spindle#64 at 50, 60, 100 rpm at room temperature. The corresponding dial reading on the viscometer was noted. Then the spindle was lowered successively. The dial reading was multiplied by the factor mentioned in catalog.

j) **Spreadability:** In this method of gels placed among the 2 glass plates of five cm x 2 cm. Such that the formulation became sandwiched among the two slides via putting a weight of one hundred gm uniformly on the slides. The weight is removed, and the excess of gel become scrapped off. Two slides in a position had been constant to a stand at a 45 ° angle without the slightest disturbance so that only the lower slide turned into held firmly through the clamp, permitting the higher slide to slip off freely with the assistance of 20 gm weight tied to the higher slide. The time taken for the higher slide to split away from the lower glass plate is calculated. The test became carried out in triplicate, and spreadability changed into calculated as follows:

Spreadability = (Weight × Length) / Time

Where, S = Spreadability, L =Length of the glass plate. W=Weight tied to the upper plate, T = Time taken (sec).

k) **Stability study:** Prepared gels have been evaluated for their thermostability and shelf life for 3 months.

RESULTS AND DISCUSSION

Physio-Chemical Constants

a) Ash value: The total ash usually consists of carbonate, phosphate and silicates.

i. Total ash: The total ash content of the raw materials were determined, taking sample from the collected materials calculated in table below

Table No. 2: Total ash value of raw material.

S. No.	Ingredients	Total ash (%w/w)	*Limits (%w/w)
1.	*Curcuma Longa*	9.3±1.8	Not more than 12
2.	*Thuja*	8.6±1.2	Not more than 15

ii. Acid insoluble ash: From the total ash, the acid insoluble ash content of the individual raw materials determined and results enumerated below

Table No. 3: Acid insoluble ash value of raw material.

S. No.	Ingredients	Acid insoluble ash (%w/w)	*Limits (%w/w)
1.	*Curcuma Longa*	0.5±1.2	Not more than 0.6
2.	*Thuja*	1.4±1.5	Not more than 2.5

iii. Sulphated ash: Sulphated content of raw materials was determined, the values obtained and their acceptable limits defined are given in table

Table No. 4. Sulphated ash value of raw material.

S. No.	Ingredients	Sulphated Ash (%w/w)	*Limits (%w/w)
1.	*Curcuma Longa*	8.2±1.2	Not more than 10
2.	*Thuja*	7.4±1.5	Not more than 8

b) Extractive values

i. Water soluble extractive: Water soluble extractive values for the raw materials in water were determined and the results were given in table below

Table No. 5. Water soluble extractive value of raw material.

S. No.	Ingredients	Water Soluble Extractive (%w/w)	*Limits (%w/w)
1.	*Curcuma Longa*	24.5±1.2	Not more than 25
2.	*Thuja*	17.4±1.5	Not more than 18

ii. **Alcohol soluble extractive:** Alcohol soluble extractive values for the raw materials in ethanol 95% were determined and the results were given in table

Table No. 6. Alcohol soluble extractive value of raw material.

S. No.	Ingredients	Alcohol Soluble Extractive (%w/w)	*Limits (%w/w)
1.	*Curcuma Longa*	09.5±1.2	Not more than 10
2.	*Thuja*	7.4±1.5	Not more than 8

iii. **Ether soluble extractive:** Ether soluble extractive values for the raw materials in ether were determined and the results were given in table

Table No. 7: Ether soluble extractive value of raw material.

S. No.	Ingredients	Ether Soluble Extractive (%w/w)	*Limits (%w/w)
1.	*Curcuma Longa*	2.5±1.2	Not less than 1
2.	*Thuja*	1.4±1.5	Not less than 4

c) Moisture content

i. **Loss on drying:** Loss on dry analysis in the raw materials were carried out and the results were recorded and results in Table

Table No. 8: Loss on drying value of raw material.

S. No.	Ingredients	LOD (%w/w)	*Limits (%w/w)
1.	*Curcuma Longa*	4.6	Not more than 15
2.	*Thuja*	6.3	Not more than 14

Extracts % yield[12]

The shade dried all plants materials raw were extracted in extractor by maceration methods with the universal solvent ethanol. All the extracts were concentrated using rotary vacuum evaporator. The percentage yield was calculated for every extract in terms of dried weight of plant materials. The colour and consistency of the concentrated extracts are given in table below.

Fig. 1: Pictures of obtained extracts.

Table No. 9: Percentage yield of extracts.

S. No.	Plant name	Solvent	Method of extraction	Physical nature	Color	Yield (%w/w)
1.	*Curcuma Longa*	Ethanol (95%)	Maceration	Semisolid	Dark yellow	5.65
2.	*Thuja*				Dark green	5.7

Qualitative estimation of phytoconstituents[13]

i. Preliminary phytochemical analysis of raw materials

The raw material powders and all the extracts were subjected to qualitative phytochemical analysis to identify the various phytoconstituents present in it, as per the standard procedures. The results are given in the Table.

Table No. 10: Preliminary phytochemical analysis of raw materials.

Chemical constituents	*Curcuma Longa*		*Thuja Occidentalis*	
	Powder	Extract	Powder	Extract
Steroids	-	-	-	-
Glycosides	-	-	-	-
Phenols	+	+	+	+
Flavonoids	+	+	+	+
Tannins	+	+	+	+
Proteins	+	+	+	+
Alkaloids	-	-	-	+
Carbohydrates	+	+	+	+
Terpenoids	-	-	-	-
Fats and oils	-	-	+	+

+ indicates presence, - indicates absence

ii. IR spectroscopy of obtained extracts

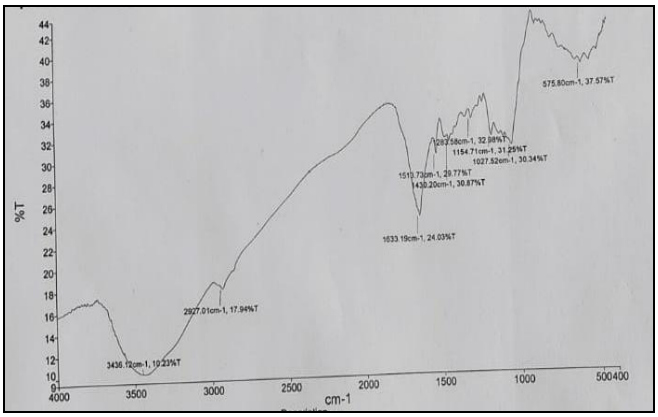

Fig. 7: Infrared spectrum of any compound or drug gives information about the groups present in that particular compound. IR spectrum of *Curcuma Longa* extract was taken out on Perkin Elmer IR Spectrophotometer. Various peaks in IR spectrum were interpreted for the presence of different groups.

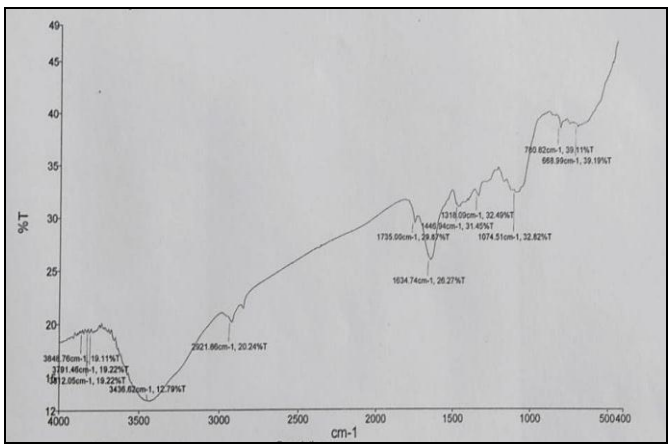

Fig. 8: Infrared spectrum of any compound or drug gives information about the groups present in that particular compound. IR spectrum of *Thuja Occidentalis* extract was taken out on Perkin Elmer IR Spectrophotometer. Various peaks in IR spectrum were interpreted for the presence of different groups.

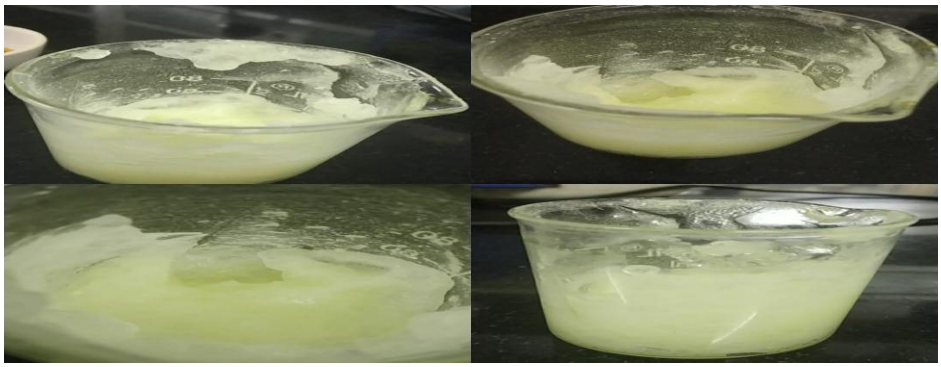

Fig. 2: Prepared gel without extract.

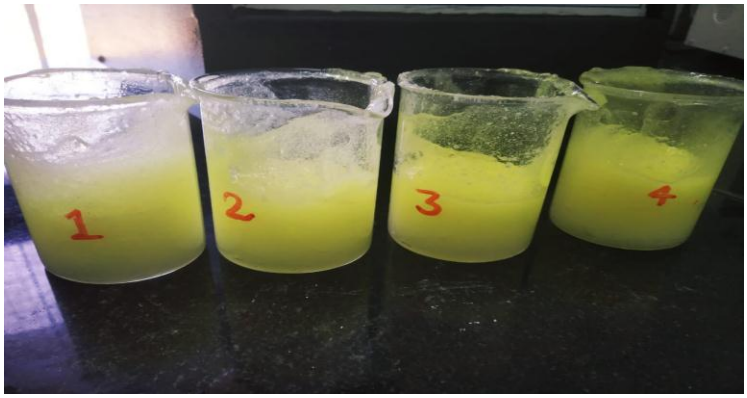

Fig. 3: Prepared gel with extract.

Evaluation of prepared herbal gel

a) Physical appearance: The prepared gel was evaluated for its organoleptic properties such as appearance, color and odor. Appearance of the formulation was checked visually and the results are shown in table.

Table no. 11: Results for organoleptic properties of formulations.

S. No.	Formulation code	Odor	Color
1	HG F1	Resinous	Yellowish Green
2	HG F2	Resinous	Yellowish Green
3	HG F3	Resinous	Yellowish Green
4	HG F4	Resinous	Yellowish Green

b) Consistency: The prepared formulations produce semisolid consistency this was confirmed by visual observation. The results are shown in table.

Table no. 12: Results for consistency of formulations.

S. No.	Formulation code	Consistency
1	HG F1	Soft
2	HG F2	Soft
3	HG F3	Soft
4	HG F4	Soft

c) Greasiness: The prepared formulations are does not greasiness upon application on the skin. The results are shown in table.

Table no. 13: Results for consistency of formulations.

S. No.	Formulation code	Greasiness
1	HG F1	No Greasiness
2	HG F2	No Greasiness
3	HG F3	No Greasiness
4	HG F4	No Greasiness

d) pH: The pH of formulation was found to be satisfactory and in the range of 5.6-5.8. It is near to the skin pH which indicates that the prepared formulation can be compatible with skin. The results are shown in table.

Table no. 14: Results for pH of formulations.

S. No.	Formulation code	pH
1	HG F1	6.8
2	HG F2	6.9
3	HG F3	7.1
4	HG F4	7.0

e) Wash ability: Prepared formulations were easily washed with water. The results are shown in table.

Table no. 15: Results for wash ability properties of formulations.

S. No.	Formulation code	Wash ability
1	HG F1	Easily washed
2	HG F2	Easily washed
3	HG F3	Easily washed
4	HG F4	Easily washed

f) Homogeneity: Under visual inspection of the prepared formulation indicated no lumps and to have uniform color dispersion, free from any fiber and particle. The results are shown in table.

Table no. 16: Results for homogeneity of formulations.

S. No.	Formulation code	Homogeneity
1	HG F1	Good
2	HG F2	Good
3	HG F3	Good
4	HG F4	Good

g) Extrudability: The prepared formulations show that good extrudability.The percent of the extruded gel was calculated (>90% extrudability: excellent, >80% extrudability: good, >70% extrudability: fair). The results are shown in table.

Table No. 17: Results for extrudability properties of formulations.

S. No.	Formulation code	Extrudability
1	HG F1	Good
2	HG F2	Good
3	HG F3	Good
4	HG F4	Good

h) Grittiness: The prepared formulation are shows no grittiness. The results are shown in table.

Table No. 18: Results for grittiness properties of formulations.

S. No.	Formulation code	Grittiness
1	HG F1	No Grittiness
2	HG F2	No Grittiness
3	HG F3	No Grittiness
4	HG F4	No Grittiness

i) Viscosity: Viscosities of formulated gels were determined using Brookfield viscometer given in table below.

Table No. 19: Results for viscosities of formulations.

S. No.	Formulation code	Viscosity(cp)		
		50 RPM	60 RPM	100 RPM
1	HG F1	3540	3080	2106
2	HG F2	4764	4030	2508
3	HG F3	3312	2960	2070
4	HG F4	4656	4070	2772

j) Spreadability: The spreadability studies showed that all formulations have better spreadability.

Table No. 20: Results for spreadability properties of formulations.

S. No.	Formulation code	Spreadability (gm-cm/sec)
1	HG F1	Good
2	HG F2	Good
3	HG F3	Good
4	HG F4	Good

k) Stability study[14]: During stability studies all formulation produces good results during 3 months and the results are shown in the table.

Table No. 21: Results for stability of formulations.

S. No.	Formulation code / Parameters	HG F1	HG F2	HG F3	HG F4
1	Color	Yellowish Green	Yellowish Green	Yellowish Green	Yellowish Green
2	Odor	Pungent	Pungent	Pungent	Pungent
3	pH	No change	No change	No change	No change

4	Spreadability	Good	Good	Good	Good
5	Viscosity	No change	No change	No change	No change

CONCLUSION

The phytochemical constant were carried out for the plants powder and extracts of *Curcuma longa*, *Thuja Occidentalis* to bring the quality and purity of the valuable medicinal plants. Preliminary phytochemical screening were carried out for all the plants and its extracts to determine the presence of active principle in plants.

Selected plants powder were extracted with ethanol to bring all the active principle, Qualitative estimation of total flavonoid content and total Phenolic content were determined by spectrophotometrically all the extract showed significant amount of flavonoid and phenolic compounds.

Poly herbal gel was prepared with water soluble polymer Carbopol 934, to bring a good absorption capacity of the plant extracts for topical drug delivery.

In this study, the semisolid preparations containing an ethanolic extract of the polyherbal gel used in treating skin disease were prepared and characterized. For phytochemical analysis, the total content of phenolic compounds, which were used as bioactive markers in this study, as well as the total flavonoid content was investigated. The standardization parameters of the gel such as viscosity, pH, Homogeneity, Spreadability, content uniformity, was carried out to bring a quality, purity and safety of the prepared Herbal gel formulation. Based on the evaluation parameters HG 1 found to be more stable and optimized among all Formulations.

In all terms gels were found to be optimal. Thus, these can be further evaluated for Phytochemical analysis and *In vitro and In vivo* animal models against skin disease.

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