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FORMULATION AND EVALUATION OF HERBAL FACEWASH FROM LEAVES EXTRACT OF CORIANDRUM SATIVUM & ITS ANTIOXIDANT ACTIVITY

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Abstract:

Objective: The goal of current study was to prepare leaves extract of *Coriandrum sativum L.*(Apiaceae), to formulate and prepare extract into the herbal face wash, carryout the antioxidant activity of isolated extract.

Methods: In this study, the aqueous leaves extract was prepared by using the soxhlet extraction method and employed for the phytochemical investigation. Phytoconstituent were isolated by the column chromatography by using the finalized mobile phase (ethyl ether: Petroleum ether : methanol: water (20:45:35:10)

Column chromatography:

Fill the column about one third with the solvent. take a measured quantity of silica gel , In a separate flask or beaker take measured solvent approximately one half time of silica. Add the silica to solvent or little at time, while swirling. Pour the slurry into the column. Allow the solvent to drain to prevent from overflowing. Continue to transfer slurry to the column until all the silica gel is added. Drain out the solvent until the solvent level is just even with surface of stationary phase. Add 3mm layer of sand on the top of silica gel to prevent it from the moving during the solvent addition. Dissolve your reaction mixture in 1-2 ml of dichloromethane. The flavonoid was effectively separated from the sample extract separately in a silica gel column with ethyl ether: petroleum ether: Methanol: water (20:45:35:10)

DPPH assay: The antioxidant activity of phytoconstituent was evaluated by means of 2, 2-diphenyl 1-1 picrylhydrazyl hydrate free radical scavenging assay. The varied concentration of sample C3 phytoconstituent

(25, 50,75 and 100 µl) were added to the 10 ml of 0.1 mM DPPH solution and placed under dark at room temperature for 30 mins to facilitates the reaction. After that the absorbance was recorded by using the 570nm wavelength using a spectrophotometer. The same experiment was carried out in a similar manner using the ascorbic acid as standard and methanol as negative control. The following equation was used to calculate the ability to scavenge the DPPH radical.

% of radical scavenging ½ control-sample = Control X 100 (2)

Formulation & Evaluation of herbal face wash:

Carbapol 934 was swelled in water along with extract

The stirring should be done to mix the carbapol to form gel. After swelling of the carbapol the glycerin was added. To the above mixture, sodium lauryl sulphate was introduced and gently mixed

Few drops of NaOH and methyl paraben as a preservative and kept aside a beaker for 1 days. The following parameters were measured by the physical evaluation like state, colour and odour, washability, pH, viscosity, Grittiness, after feel, Homogenicity.

Result: The aqueous extract of *Coriandrum sativum (L)* was prepared by using the Soxhlet extraction method. From the phytochemical evaluation it was observed that presence of alkaloid, flavonoid, tannin, glycoside in the extract. The phytoconstituents were separated by the column chromatography. (Mobile Phase like ethyl ether: Petroleum ether : methanol: water (20:45:35:10)

Conclusion: The leaves extract of *Coriandrum sativum L* was prepared by using the soxhlet extraction method. The formulation and evaluation of developed formulation conducted successfully. The isolation of phytoconstituents by using the column chromatography carried out. From the DPPH assay result stated that among the various concentration of phytoconstituent shows the excellent scavenging activity as compared to the Control group. As the concentration of extract increases, the antioxidant activity also increases.

Keyword : *Coriandrum sativum L*, Phytochemical analysis, Isolation of Phytoconstituents, , Antioxidant activity, Formulation, Evaluation of herbal face wash.

Introduction:

COSMETICS:

According to the drug and Cosmetic Act, 1940 the cosmetic is defined as , any particle intended to be rubbed, poured, sprinkled or sprayed on or introduction into otherwise applied to the human body or any other for beautifying, cleansing, promoting attractiveness or alter the appearance and include the any particle intended for use a component of cosmetic.[1] Cosmetics are constituted the mixture of chemical compounds obtained from either natural source and synthetically created ones.[2]

HERBAL COSMETICS

The Cosmetics which are prepared using the plant products have cosmetic actions. Nowadays the use of botanical cosmetics increases due to the non-toxic and mild action. In this case the natural supplements and phyto ingredients are used. The different natural products like oil, phytoconstituent obtained from the crude drug by using the various processes.[3]

DRUG PROFILE

The *Coriandrum sativum L.* (family – Apiaceae) The Plant material consist of Volatile oil are 90 % and coriandryl acetate and other constituents like borneol, p-cymene, Camphor, geraniol, limonene and alpha pinene. The leaves of plant material are rich source of beta carotene and consist of chemical constituents like Essential oils, Flavonoids (kaemoferol, quercetin-3'OMe quercetin, acacetin) Phenolic acids (Vanillin, coumaric acid, ferulic acid) polyphenol, Fatty acids (lineloic acid, Palmitic acids. The leaves of plant material are used in treatment of chest pain, gall bladder problem, and cough and increase the sexual behavior [4]

Taxonomy of *Coriandrum sativum L.*

Taxonomical rank	Taxon
Kingdom	Plantae
Division	Spermatophyta
Order	Apiates
Family	Apiaceae
Genus	Coriandrum
Species	*C.Sativum*
Common Name	Coriander

Table no 1 Taxonomy of *Coriandrum sativum L.*

Methods :

Selection of Plant materials:

The *Coriandrum sativum L.* leaves was procured from the local region of Kolhapur which was authenticated by Dr.Vinod B. Shimpale, Professor, Department of Botany, The New College Kolhapur.

Preparation of Plant Extract:

The leaves of *Coriandrum sativum L.*were collected and powdered into fine particles. Weigh 10 gm of powder and mix with 100 ml of water for 1 day with periodic shaking. Then the extract was filtered and filtered extract was stored in china dish and allow to dry in calcium chloride chamber.[5]

Phytochemical Investigation:

Test For alkaloid:

1. Dragendorff's Test : add 1ml of dragendorff's reagent to the 2ml of plant extract the orange red precipitate was formed hence it observed that presence of alkaloid.
2. Mayer's Test: Add 1ml of extract with few drops of Mayer's reagent it gives the yellowish precipitates.
3. Hager's Test: Add 1ml of extract with few drops of hagers reagent it gives yellow precipitates. It indicates that presence of alkaloid.

Test for flavonoids

Alkaline reagent Test: 2ml of 2% NaOH solution was mixed with plant extract, intensive yellow color which turned into colorless when added 2 drops of dilute acid which indicates that the presence of flavonoid.

Lead acetate Test: Add 2ml of extract to the lead acetate solution therefore formation of white precipitate it indicates that presence of flavonoids

Test for Phenol: Add 1ml of extract into the 1-2 ml of water and add few drops of ferric chloride solution formation of blue colour.

Experimental Design :

Thin layer Chromatography:

The Plant extract was subjected to the thin layer chromatography for the separation of phytoconstituents by using the different solvent system therefore, the finalized mobile phase to be subjected to the isolation of phytoconstituent by using the mobile phase like Ethyl ether: Petroleum ether: Methanol: Water ((20:45:35:10).[5]

Isolation by Column Chromatography:

Column Chromatography:

The column Chromatography was used for the isolation of Phytoconstituents.

1. Fill the column about one third with the solvent. take a measured quantity of silica gel
2. In a separate flask or beaker take measured solvent approximately one half time of silica.
4. Add the silica to solvent or little at time, while swirling. Pour the slurry into the column.
5. Allow the solvent to drain to prevent from overflowing. Continue to transfer slurry to the column until all the silica gel is added. Drain out the solvent until the solvent level is just even with surface of stationary phase.
6. Add 3mm layer of sand on the top of silica gel to prevent it from the moving during the solvent addition. Dissolve your reaction mixture in 1-2 ml of dichloromethane.
7. The flavonoids was effectively separated from the sample extract separately in a silica gel column with ethyl ether: petroleum ether: Methanol : water (20:45:35:10) [5,11]

Antioxidant activity of Isolated Phytoconstituent:

DPPH assay:

1. The antioxidant activity of extract was evaluated by means of 2, 2-diphenyl 1-1 picrylhydrazyl hydrate free radical scavenging assay.
2. The varied concentration of sample C3 phytoconstituent (25, 50,75 and 100 µl) were added to the 10 ml of 0.1 mM DPPH solution and placed under dark at room temperature for 30 mins to facilitates the reaction.
3. After that the absorbance was recorded by using the 570nm wavelength using a spectrophotometer. The same experiment was carried out in a similar manner using the ascorbic acid as standard and methanol as negative control.
4. The following equation was used to calculate the ability to scavenge the DPPH radical.
5. % of radical scavenging ½ control-sample = Control X 100 (2)[8]

Formulation and Evaluation of Developed formulation:

1. Carbapol 934 was swelled in water along with extract
2. The stirring should be done to mix the carbapol to form gel. After swelling of the carbapol the glycerin was added. To the above mixture, sodium lauryl sulphate was introduced and gently mixed

3. Few drops of NaOH and methyl paraben as a preservative and kept aside a beaker for 1 days.
4. The following parameters were measured by the physical evaluation like state, colour and odour, washability, pH, viscosity, Irritancy, Foam ability, Spreadabilty, Consistency.[10]
5. The following composition are used in developed of formulation

Sr No	Ingredients	Quantity	Uses
1	Extract	3 gm	Antioxidant
2	Carbapol 934	2.5 gm	Polymer
3	Methyl paraben	1 gm	Preservative
4	NaOH	0.2 mg	-
5	Glycerin	2ml	Emulsifying agents
6	Sodium Lauryl sulphate	2.5 mg	Emulsifying agents
7	Distilled Water	q s	Vehicle

Table no 2 Composition of Developed Herbal Face wash

Evaluation of Herbal Facewash

1. **Physical Evaluation:**
2. **Irritancy Effect**

   Mark the 1-2 cm region on the dorsal surface. After that the gel was applied on the surface. The duration of examination of irritancy was for 24 hours. No any irritancy and erythema reported.
3. **Wash ability:**

   Wash ability test was carried out by applying the gel on the surface hand and showed under running water.
4. **Spreadabilty test:** The spread ability of was found be by applying the gel on the hands and rub gently.
5. **Consistency:** The determination of consistency was performed manually.
6. **pH** : The pH of developed formulation was found to be 7 and pH of standard gel was found to be 7.3. it was determined by the pH meter.
7. **Foam ability:** The small amount of water was taken in the beaker and mixes the gel thoroughly by using the stirrer.
8. **Viscosity:** The viscosity of developed formulation was found to be 1690 cps. It was determined by the Brookfield viscometer.[10]

Result and Discussion :

The Phytochemical investigation of aqueous extract of plant revealed the presence of alkaloid, flavonoids, tannin and glycoside.

Sr No	Test	Observation	Inference

1	Dragendroffs Test	Orange red precipitate	Alkaloid may be present
2	Hagers Test	Yellowish precipitate	Alkaloid may be present
3	Mayers Test	Yellowish precipitate	Alkaloid may be present
4	Alkaline reagent test	Yellowish colour turn into colorless	Flavonoids may be present
5	Lead acetate test	White Precipitate	Flavonoids may be present
6	Test for Phenol	Blue colour	Phenol may be present

Table no 3 Phytochemical investigation of Extract

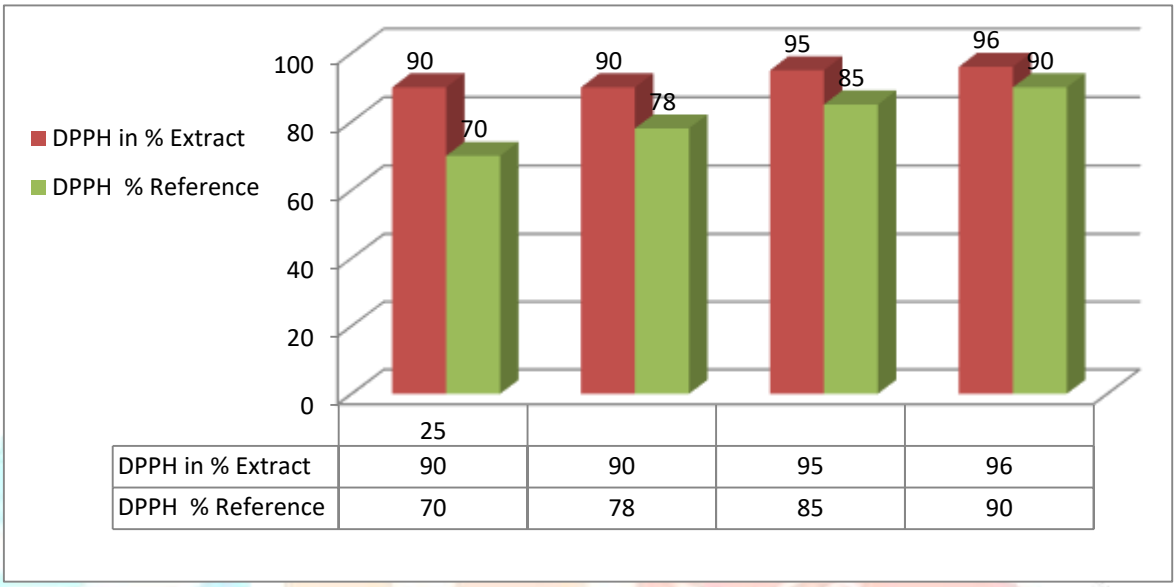

Fig No 3 Diagrammatic Representation of DPPH assay

The fractions of phytoconstituents isolated successfully by using the suitable mobile phase like Ethyl ether: Petroleum ether: Methanol: Water ((20:45:35:10).

The flavonoid may be responsible for the antioxidant activity therefore the extract was subjected for antioxidant activity by DPPH assay method.

DPPH assay result stated that the phytoconstituent of extract possessing the more antioxidant activity as compared to the control group.

Evaluation tests

Sr No	Parameters	Observation
1	Colour	Yellowish

2	Odour	Characteristic
3	State	Semisolid
4	Consistency	Semisolid
5	Wash ability	Easily washable
6	pH	7
7	Spread ability	Easily spreadable
8	Foam ability	Good
9	Viscosity	1690 cps

Table no 4 Evaluation Parameters of Developed Herbal Facewash

CONCLUSION

The herbal products are safer with fewer side effects than synthetic ones. The World market is moving towards the herbal medicines for the health care and for the cosmetic purpose. The Developed herbal formulation was evaluated by using various parameters like wash ability, spread ability, pH, foam ability as the carbapol enhances the gel strength of the formulation. The formulation will have good spread ability, wash ability result. It indicates that it easy to application on the skin.

BIBILIOGRAPHY

1. http://cdsco.gov.in
2. http://en.m.wikepedia.org
3. Saudagar R.B., Sisodiya M.H. Review on herbal cosmetics; 7(7): 573-591.
4. Divya P, Puthusseri B, Neelwarne B, Carotenoid content, its satability during the drying and antioxidant activity of commercial coriander varities. Food Research International 2012;45(1):342-50
5. Vasoya Dhruval, Vasava Nehali, Vazara Ronak, Vaishali Sharma, Dhananjay Meshram, Formulation, Evaluation and stability study of facewash containing polyherbal extract. World Journal of Pharmaceutical Research (2021);10(9): 1905-1918
6. Yadav Shivkumar , Yadav Puyush, Yadav Deepa kumar, Maurya Manish kumar, Yadav Praveen kumar , A review article on Phytomedicines : Coriander.
7. Muhammed Nadeem, Fakir Muhammad Anjum, Muhammad Issa Kha, Sameena Tehsin, Nutritional and medicinal aspects of coriander. British Food Journal (2013); 115(5): 743-755.
8. Jangra Satya shree, V.K.Kadam, Sigh Isha , Dushyant, Comparative analysis of Phytochemical profile and antioxidant activity of coriander (Coriandrum Sativum L). Asian Journal of Chemistry (2018); 30(3): 508-512.
9. Vandar Ashish, Sheikh Rehana, Thombare Rajanee, Chivate Anirudh, Chivate Niranjan, American Journal of Pharma tech research (2018);8(4); 2249-3387.
10. Khade Swati, Uchale Tushar, Gosavi akshata, Gunjal Abhishek, Thange Avanti, Formulation and evaluation of herbal facewash. International Journal of advanced research in science, communication and technology (2022);2(5):807-813.

11. Iqbal M,J, Butt M.S., ShehzadA. In vitro antioxidant and chromatographic quantification of supercritical fluid extracts obtained from coriander. Journal of the chemical society of Pakistan.40 (4); 733-741.