
FORMULATION AND EVALUATION OF HERBAL LIP BALM

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ABSTRACT

The Lip Care Products For Everyday Basis Contain Harmful Heavy Metals And Preservatives. Other Than Leaching Through The Pores On Your Lips , These Heavy Metals And Other Chemicals Can Also Be Accidentally Ingested. Lead Affects Heart And Brain, Cadmium And Chromium Can Cause Cancer, Preservative Could Cause Breast Cancer. Lip Balms Are Formulations Applied Onto The Lips To Prevent Drying And Protect Against Adverse Environmental Factors. Organic Lip Balms Nourishes The Lips And Help To Get Hydrated And Protect Lips Affected By Chapping And Dryness. They Help To Protect The Natural Health And Beauty Of The Lips. Lip Balms Are Not Gender Specific Products And Both Men And Women Can Use Them . In The Present Study Many Organic Products Like Ghee And Honey, Can Help To Keep Lips Hydrated And Healthy. Prepared Lip Balm Was Evaluated For Organoleptic Characteristics , Melting Point, Spreadability, Ph Measurement And Stability Studies. After Performing Stability Studies At Room Temperature (25.0 ± 3.0 °c) , Refrigeration (4 ± 2.0 °c) And Oven Temperature (40.0 ± 2.0 °c) For 30 Days. It Was Concluded That Prepared Lip Balm Shows Uniform Nature , Perfect Application , Without Any Deformation At Room Temperature (25.0 ± 3.0 °c) And At Refrigeration (4 ± 2.0 °c) . Mean Melting Point Was 69 °c. Mean Ph Was 7.2 , Which Is Near To The Neutral Ph . Storage In The Oven (40.0 ± 2.0 °C) Is Not Recommended Because Of Loss Of Product Functionality Observed During The Normal Stability. Organic Lip Balm Can Be A Better Option For Treatment Of Various Lip Issues. It Was Concluded That Organic Lip Balm Can Be A Better Option For Treatment Of Various Lip Issues.

Keywords: Herbal Lip Balm, Natural Skincare, Formulation, Evaluation, Herbal Cosmetic, Herbal Lip Care.

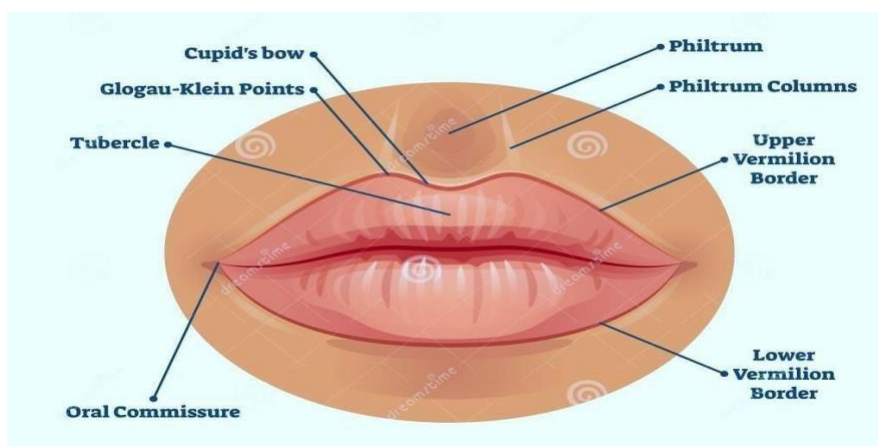
I. INTRODUCTION

Due To Increasing Public Concern, On The Presence Of Hazardous Synthetic Excipients In Cosmetics , New Techniques Are Gained To Produce Products Using Organic Sources. Chapped, Dry Or Cracked Lips Are Very Common Beauty Dilemma, Particularly In Harsh Weather. Lips Have No Oil Glands, So They Really Need That Extra Moisture And Protection Throughout The Day. Many People Deal With Dried-Out Lips During The Winter, But The Problem Can Continue In Sunny Seasons, Too. Conventional Lip Balms Often Contain Petrolatum, Synthetic Waxes, Alumina, Parabens , Hydrogenated Oils And Artificial Fragrances And Colours Which Are Toxic. Lip Balms Are Often Eaten Away By The User And Hence It Is Imperative That Health Regulators Have A Microscopic Look At The Ingredients That Go To The Lip Balm. The Dyes That Contribute To The Color Of The Lip Balm Are Dangerous To Humans On Consumption. Lips Contain Little Melanin, Which Provides Some Protection From The Sun. Although Many Organic Products Like Ghee, Honey, Vitamin E Can Help Keep Lips Hydrated And Healthy When Used As Part Of A Larger Regimen. Organic Word Is The Symbol Of Safety In Contrast To Synthetic One Which Has Adverse Effects On Human Health. Cosmeceuticals Are Cosmetic Products With Biologically Active Ingredients Purporting To Medical Or Drug Like Benefits. These Ingredients Have Medicinal Properties That Manifests Beneficial Topical Actions And Provides Protection Against Degenerative Skin Condition. The Present Work Was Carried Out By Us To Formulate Organic Lipstick Having Less Side Effects. Products That Are Used To Protect Lips Rather Than Decorate Them Are Known As Lip Balms. They Form An Adherent, Flexible , Moisture Resistant Film Of Oily Substances. Usually They Do Not Contain Dye. Honey Helps To Lighten Up The Dark Lips. Honey Is Rich With Bleaching Action That Generally Removes The Darkness Of The Lip Skin. It Is Also High In Antioxidants That Help Repair Daily Uv Damage. Ghee Contains Essential Fatty Acids That Help Condition And Nourish Dry And Chapped Lips . The Application Of Pure Ghee On Chapped Lips Will Help To Cure The Problem Of Cracked Lips As Well As Discoloured Lips With Quick Effects. Beeswax Is A Natural Compound Secreted By Female Bees That Is Often Used In Cosmetics, Particularly Lip Balm. This Substance Is Very Moisturizing, Can Help Protect The Lips From The Harmful Rays Of The Sun, And Has A Pleasant Smell . Beeswax Act As A Natural Emulsifiers . Castor Oil Penetrates Deep Into The Skin Tissue And Its Fatty Acids Help To Moisturize The Lips.

The Anti-Inflammatory Properties Of Castor Oil Reduce Redness And Pain Associated With Chapped And

Sunburnt Lips. Vitamin E Is An Antioxidant And A Natural Conditioner. Vitamin E Helps To Maintain The Soft, Youthful Texture Of Your Lips By Reducing The Signs Of Aging. Stability Studies Are Useful As A Screening Tool For All Potential Manifestations Of Instability Of A Formulation, Even If They Never Occur Under Conditions Of Product Use. Furthermore, Possible Changes In The Product Can Be Identified Before It Is Released For Use By Consumers.

Anatomy Of Lips



The Lips Serve As Organs Of Prehension, Suction And Speech. It Is Composed Of The Skin , Superficial Fascia, Orbicularis Muscle And The Muscles Inserted Around It (Areolartissue & Mucous Membrane). The Margins Of The Lips Are Covered With Dry, Red Mucous Membrane, Continuous With The Skin And Containing Numerous Vascular Papillae And Touch Corpuscles. The Mucous Membrane Internally Is Reflected From Theupper And Lower Lip Upon The Gums, And In The Median Line Forms Two Folds Of Superioris And Inferioris. The Areolar Tissue Or Submucous Layer Contains The Coronary Vessels Which Completely Encircle The Buccal Orifice Near The Free Margin Of The Lips. The Coronary Vessels Are The Superior And Inferior Coronary Arteries Which Arise From The Facial. The Superior Coronary Is Larger Than The Inferior, And Anastomoses With Its Fellow Of The Opposite Side And Gives Off A Small Artery To The Septum Arteriasseptinasi. Compression Of This Artery Will Sometimes Control Nasal Hemorrhage. The Superior Labial Or Coronary Vein Begins As A Plexus In The Orbicular Is Muscle Of The Upper Lip, Passes With The Coronary Artery And Drains Into The Facial Vein A Little Below The Alae Of The Nose Of The Veins Which Drain The Lower Lip The Inferior Coronary Empties Into The Facial A Little Below The Superior Labial.

The Chief Branch From The Lower Lip Descends As A Rule To The Submental Vein, Thence To The Facial Or Often To The Anterior Jugular. The Nerves Supplying The Lower Lip Are Derived From The Mental Which Emerges From The Bone Through The Mental Foramen And Sends Large Twigs To The Mucous Membrane, The Integument And The Fascia Of The Lip And Chin. Some Of The Lymphatic Vessels Of The Lips Pass To A Gland Just Above The Body Of The Hyoid Bone, While Others Pass To The Sub Maxillary Glands. The Labial Glands Are In The Submucous Layer Of The Lips Around The Orifice Of The Mouth. They Secrete A Mucous Fluid. Mucous Retention Cysts Develop When The Ducts Of These Glands Become Occluded.

Advantages Of Natural Lip Balm:

1. Natural Lip Balms Helps To Care The Natural Health And Beauty Of The Lips.
2. The Natural Lip Balm Can Use Both Men And Women Can Use Them.
3. Natural Lip Balm Products Help To Protect Lips Affected By Cold Sores, Chapping And Dryness.
4. The Use Of Natural Lip Balm Cosmetic To Treat The Appearance Of The Face And Condition Of The Skin.

Disadvantages Of Natural Lip Balm:

1. Lip Balms Made Of Low Quality Ingredients Can Harm The Lips Seriously.
2. Lip Balm Addiction.
3. Compared To Commercially-Prepared Lip Balms, Homemade Lip Balms Tend Tostay On The Lips For A Shorter Duration Of Time.

4. Natural Oils Have Other Disadvantages Such As Greasier And Less Spreadability.
5. Common Ingredients Used In Natural Lip Balm.

Application Of Natural Lip Balm:

1. Natural Lip Balms Are Products Applied Onto The Lips To Avoid Dryiness And Protect Against Adverse Environmental Factors.
2. Numerous Lip Balms Of Chemical Origin Are Currently Available In The Market From Companies Like The Body Shop, Nivea, Himalaya, Blistex, Babylip Etc.
3. Natural Lip Balm Being A Product Intended For Use By Both Men And Women.
4. To Produce Lip Balms , It Is Necessary To Balance The Concentration Of The Main Ingredients Including Butters, Oils And Waxes And Other Excipients .
5. Lip Balms Are Often Eaten Away By The User And Hence It Is Imperative That Health Regulators Have A Microscopic Look At The Ingredients That Go In To The Lip Balm.

II. MATERIAL AND METHODS

The Drug, Excipients, And Chemicals/ Reagents Used For Various Experiments Are Enlisted As Follows

Table 1: List Of Materials Used For Experimental Work

Sr. No.	Materials
1	Bees Wax
2	Ghee
3	Castor Oil
4	Honey
5	Vitamin E
6	Vanillin
7	Orange Peel Extract

Material Used In Herbal Lip Balm :

Bees Wax



Synonym :

- Yellow Wax, Cera Alba.
- White Wax Obtained Is Known A Cera Flava.

Description:

Colour - Yellow To Yellowish – Brown

Odour – Agreeable And Honey – Like

Biological Source -

Obtained From The Honey Comb Of The Bees Apis Mellifera And Other Species Of Apis Belongig To The Family Apidae.

Geographical Source - It Is Produced In France , Italy, West Africa, India

Uses -

1. In Preparation Of Ointment , Plasters And Polishes.

2. Also Used In The Manufacturing Of Candles , Moulds In Dental And Electronic Industries , Cosmetics For Lip Sticks , Face Cream.

3. Is An Ingredient Of Paraffin Ointment

Ghee



Synonymy: Clarified Butter

Description:

Colour - Yellowish Or Golden

Odour - Nuttier Aroma.

Biological Source:

Ghee Is A Form Of Highly-Clarified Butter That Is Traditionally Used In Asian Cooking. Like Butter, Ghee Is Typically Made From Cow's Milk. Ghee Is Made By Melting Regular Butter. The Butter Separates Into Liquid Fats And Milk Solids.

Geographical Source:

India Usa, Australia, And New Zealand

Chemical Constituent :

Chemically, Ghee Is A Complex Lipid Of Glycerides (Usually Mixed), Free Fatty Acids, Phospholipids, Sterols, Sterol Esters, Fat Soluble Vitamins, Carbonyls, Hydrocarbons, Carotenoids (Only In Ghee Derived From Cow Milk), Small Amounts Of Charred Casein And Traces Of Calcium, Phosphorus, Iron, Etc.

Uses:

- Has Healthy Fats. Research Proves That Ghee Is Low In Fat.
- Helps Digestive System. Ghee Consumption Is Strongly Related To A Healthy Gut.
- Strengthens Immune System.
- Source Of Essential Vitamins.
- Anti-Inflammatory And Anti-Cancer.
- Boon For Lactose Intolerant.
- Treats Burns.
- Healthy Skin.

Castor Oil



Synonym : Ricinus Oil.

Description:

Colour - Colorless Or A Very Pale Yellow.

Odour - Castor Oil's Smell Can Range From Neutral To Unpleasant And Even Offensive

Biological Source:

Castor Oil Is A Vegetable Oil Obtained By Pressing The Seeds Of The Castor Oil Plant (Ricinus Communis L.)

Geographical Source:

India, South America, Africa, And China.

Chemical Constituent:

The Composition Of Castor Oil Is Mainly Composed Of Fatty Acids And Neutral Lipids (Triglycerides). Other Minor Biological Active Compounds That Consist Of Unsaponifiable Fractions Such As Carotenoids, Phenolics, Phospholipids, Phytochemicals, Phytosterols, Tocopherols, And Tocotrienols Are Also Present In The Oil.

Uses:

- Support The Lymphatic System. ...
- Reduces Skin Inflammation. ...
- Fights Toenail Fungus. ...
- Hydrates Chapped Lips. ...
- Relieves Symptoms Of Migraines.

Vanillin



Synomy: Vanilla Bean

Description:

Colour - White Crystals

Odour - Vanilla, Sweet, Balsamic, Pleasant

Biological Source:

It Is The Primary Component Of The Extract Of The Vanilla Bean.

Geographical Source:

Madagascar, Indonesia, Mexico. Comoros And Reunion.

Chemical Constituent:

It Is A Phenolic Aldehyde. Its Functional Groups Include Aldehyde, Hydroxyl, And Ether.

Uses :

It Is Used In Flavouring Agent

Honey



Synomy: Madhu, Madh, Mel, Purified Honey.

Description:

Colour - Honey Color Ranges From Nearly Colorless To Dark Brown

Biological Source:

Honey Is A Viscid And Sweet Secretion Stored In The Honey Comb By Various Species Of Bees, Such As Apis Mellifera, Apis Dorsata, Apis Florea, Apis Indica And Other Species Of Apis, Belonging To Family Apidae (Order: Hymenoptera).

Geographical Source:

Honey Is Available In Abundance In Africa, India, Jamaica, Australia, California, Chili, Great Britain And New Zealand.

Chemical Constituents:

The Average Composition Of Honey Is As Follows: Moisture 14–24%, Dextrose 23–36%, Levulose (Fructose) 30–47%, Sucrose 0.4–6%, Dextrin And Gums 0–7% And Ash 0.1–0.8%. Besides, It Is Found To Contain Small Amounts Of Essential Oil, Beeswax, Pollen Grains, Formic Acid, Acetic Acid, Succinic Acid, Maltose, Dextrin, Colouring Pigments, Vitamins And An Admixture Of Enzymes, For Example, Diastase, Invertase And Inulase. Interestingly, The Sugar Contents In Honey Varies Widely From One Country To Another As It Is Exclusively Governed By The Source Of The Nectar (Availability Of Frag-Ment Flowers In The Region) And Also The Enzymatic.

Uses:

1. Use As A Natural Sweetener,
2. Honey Is Used As An Anti-Inflammatory, Antioxidant And Antibacterial Agent. 16
3. People Commonly Use Honey Orally To Treat Coughs And Topically To Treat Burns And Promote Wound Healing.

Vitamin E:

Synonym: Alpha-Tocopherol.

Description:

Colour: A Yellow To Yellowish Brown, Clear And Viscous Liquid,

Odour: Faint Characteristic Odor.

Biological Source:

Vegetable Oils (Such As Wheat Germ, Sunflower, Safflower, Corn, And Soybean Oils) Nuts (Such As Almonds, Peanuts, And Hazelnuts/Filberts) Seeds (Such As Sunflower Seeds) Green Leafy Vegetables (Such As Spinach And Broccoli)

Chemical Constituent:

Vitamin E Refers To A Group Of Eight Different Compounds: A-, B-, Γ -, And Δ -Tocopherols And The Corresponding Four Tocotrienols.

Use:

1. Vitamin E Helps Maintain Healthy Skin And Eye.
2. Vitamin E Also Has Antioxidant Properties.

Orange Peel Extract –

Binomial Name: Citrus Aurantium F. Aurantium

Kingdom: Plantae

Order: Sapindales

Family: Rutaceae

Genus: Citrus

Species: C. A. F. Aurantium

Composition:-

According To The Table, Orange Flesh Is 87% Water, 12% Carbs, 1% Protein, And Very Little Fat. Orange Flesh Has 47 Calories Per 100 Grams, Or 64% Of The Daily Value, And Is A Strong Source Of Vitamin C. The Cultivar And Method Of Production Affect The Amount Of Vitamin C. Oranges From Conventional Cultivation Lack The Same Amount Of Vitamin C As Fruits Grown Organically.

PREPARATION OF LIP BALM

- Weigh All The Ingridents.
- Add Ghee, Beeswax, Castor Oil In Beaker And Melt It On A Waterbath.
- Add Honey And Vit. E Into Beaker And Mix Vigorously So That Honey Will Not Form Clump.
- Add Vanillin And Orange Peel Extract. Pour The Content Into The Lipstick Moulds.
- Before Pouring The Mixture In Lipstick Moulds, On The Mould Apply Glycerine Will Help In Collection.
- Put The Mould In Ice Bath For 10-20 Min.

Composition Of Lip Balm



Sr. No.	Materials	Quantity
1	Bees Wax	2.5 Gm
2	Ghee	1 Gm
3	Castor Oil	8.71 Ml
4	Honey	1.76 Ml
5	Vitamin E	2.5 Gm
6	Vanillin	0.04 Gm
7	Orange Peel Extract	0.04 Ml

III. EVALUATION PARAMETER OF LIP BALM

Organoleptic Properties

The Lip Balm Was Studied For Organoleptic Characters Such As Colour, Odour, Taste And Appearance.

Test Of Spreadability :

The Test Of Spreadability Consisted Of Applying The Product (At Room Temperature) Repeatedly Onto A Glass

Slide To Visually Observe The Uniformity In The Formation Of The Protective Layer.

Measurement Of Ph:

The Ph Study Was Carried Out By Dissolving 1 Gm Of Sample Into 100 Ml Water. The Ph

Melting Point

The Melting Point Apparatus Used To Determine Melting Point Of Lip Balm. To Determine The Melting Point, Sample Of Lip Balm Was Taken In A Glass Capillary Whose One End Was Sealed By Flame. The Capillary Containing Drug Was Dipped In Liquid Paraffin Inside The Melting Point Apparatus Which Was Equipped With Magnetic Stirring Facility. Melting Was Determined Visually And Melting Point Was Reported. Measurement Was Done Using Ph Meter.

Stability Studies

Prepared Lip Balm Was Placed For Accelerated Stability Studies At Room Temperature ($25.0 \pm 3.0 \text{ }^\circ\text{C}$), Refrigeration ($4 \pm 2.0 \text{ }^\circ\text{C}$) And Oven Temperature ($40.0 \pm 2.0 \text{ }^\circ\text{C}$) For 30 Days. After 30 Days, It Was Characterized For Organoleptic Properties, Melting Point, Spreadability, And Ph.

IV. RESULTS

Organoleptic Characteristics:

Sr.No.	PHYSICAL PARAMETERS	METHODS	OBSERVATIONS
1	Colour	Visual Observation	Orange
2	Appearance	Visual Observation	Excellent, Smooth
3	Odour	Smelling By Nose	Pleasant

Test Of Spreadability :

Prepared Lip Balm, Initially Has Shown, G - Good: Uniform, No Fragmentation; Perfect Application, Without Any Deformation At Room Temperature.

Measurement Of ph :

Ph Of Lip Balm Was Near To Neutral Ph This Would Not Cause Any Irritation To Lips.



Melting Point :

Melting Point Of Lip Balm Was Found To Be In The Range Of Range Of $68 \text{ }^\circ\text{C}$ - $69 \text{ }^\circ\text{C}$ Which Matches With Appropriate Melting Point Of Between 65 And $75 \text{ }^\circ\text{C}$.

Stability Studies:

Stability Of Drug Can Be Defined As The Time From Date Of Manufacture And The Packaging Of The Formulation, Until Its Chemical Or Biological Activity Is Not Less Than A Predetermined Level Of Labeled Potency And Its Physical Characteristics Have Not Changed Appreciably. The Purpose Of Stability Testing Is To Provide Evidence On How The Quality Of A Drug Substance Or Drug Product Varies With Time Under The Influence Of Variety Of Environmental Factors Such As Temperature, Humidity And Light, Enabling Recommended Storage Conditions And Shelf-Lives. Stability Studies Were Carried Out For 1 Month/ 30 Days At Room Temperature ($25.0 \pm 3.0 \text{ }^\circ\text{C}$), Refrigeration ($4 \pm 2.0 \text{ }^\circ\text{C}$) And Oven Temp.

Table 3: Stability Studies Of Lip Balm At Different Temperature.

Parameters	25.0 ± 3.0 °c	4± 2.0 °c	40.0 ± 2.0 °c
Colour	Orange	Orange	Orange
Odour	Pleasant	Pleasant	Pleasant
Melting Point	69 ° C	69 ° C	69 ° C
Spreadability	G	G	I
Ph	7.2	7.2	7.1

It Was Observed That Prepared Lip Balm Shows, G - Good: Uniform, No Fragmentation; Perfect Application, Without Any Deformation At Room Temperature (25.0 ± 3.0 °c) And Refrigeration (4± 2.0 °c) And Shows, I - Intermediate: Uniform; Leaves Few Fragments; Appropriate Application; Little Deformation At Oven Temperature (40.0 ± 2.0 °c)

V. CONCLUSION

- The Formulation Stored At Room Temperature And Refrigerator Showed Similar Behaviour During The Stability Test.
- The Organoleptic Characteristics Were Stable And Spreadability Was Evaluated As “Good.”
- Storage Under These Conditions Was Considered Adequate, Particularly Because The Functionality Of The Product Was Maintained.
- Prepared Lip Balm Shows Good Spreadability At Normal Temperature.
- During The Stability Test, The Developed Formulation Of Organic Lip Balm Exhibited An Appropriate Melting Point (Mean Of 69oc), According To Results Of The Spreadability Tests, Storage In The Oven (40.0 ± 2.0°C) Was Not Recommended Because Of Loss Of Product Functionality Observed During The Normal Stability Test.
- It Was Concluded That Organic Lip Balm Can Be A Better Option For Treatment Of Various Lip Issues.

VI. REFERENCE

[1] Jadhav V.Godse K.C.,Deshmane P.P .,2019. Formulation And Evaluation Of Organic Lipbalm J.Ajpr .9(04), 1993-1995.,Doi

[2] Christophulos A, Md.,Msc,2018. Mouth Anatomy J.Frcdc. 8(6) .,1899122., Doi

[3] Fernandes Ar, Dario Mf,2013. Stability Evaluation Of Organic Lip Balm. J.Bjps .49(2) ., 294-299., Doi

[4] Kadu M, Singh V.2015. Review On Natural Lip Balm International Journal Of Research In Cosmetic Science 5(1),1-7 Doi

[5] Pugliese Pp "Vitamin E: A Skin Care Ally." Skin, Inc. Magazine.

[6] Barel, Ao Handbook Of Cosmetic Science And Technology. New York: Marcel Dekker, 2001, 904.

[7] Sharma Pp, Cosmetics- Formulation, Manufacturing And Quality Control, Edn 5. Vandana Publications, Delhi, 2008, 297-313.

[8] Kaul S, Dwivedi S. Inter J Pharm And Life Sci, 2010; 1 (1): Pp 44-492

[9] Anuj N. Nahata ., Nazmam ,2022 . Formulation And Evaluation Of Lipbalm . J. Ijcr. (10). 2320-2882. Doi

[10] Jayeshri C.Pawar , Vijwala Y. Kandekar . 2021. Production Of Analysis Of Lip Balm Using Herbal Resource J. Jprt . 33 (59a). 540-546.