

FORMULATION AND EVALUATION OF LIQUORICE BODY WASH

Varad Vijay Salkar

Student, Department Of Pharmaceuticals, Shri Sai Institute Of Pharmacy And Research, Chh. Sambhajinagar

varadvijaysalkar999@gmail.com

Asst. Prof. Ratnadeep Dabhade

Shri Sai Institute Of Pharmacy And Research, Chh. Sambhajinagar.

Abstract

This study aimed to formulate and evaluate a liquorice body wash for its potential benefits on skin health. The body wash was formulated using liquorice extract, known for its anti-inflammatory, antioxidant, and skin-soothing properties. The formulation was optimized for its physical, chemical, and microbiological stability. The body wash was evaluated for its pH, viscosity, foamability, and skin compatibility. The results showed that the liquorice body wash had a pH suitable for skin, good foamability, and stability. In vitro studies demonstrated the body wash's potential antioxidant and anti-inflammatory effects. The formulated liquorice body wash showed promise as a natural, gentle, and effective skincare product for promoting skin health.

Keywords-Liquorice, body wash, skincare, natural ingredients, antioxidant, anti-inflammatory.

INTRODUCTION

Liquorice, scientifically known as *Glycyrrhiza glabra*, is one of the most popular medicinal plants belonging to the Fabaceae family. It is a perennial herb grown in temperate zones. The plant parts used are runner and roots, which are collected in the fall season. The medicinal use of liquorice in the western, as well as eastern cultures, dates to thousands of years. It is one of the most common ingredients of Chinese medicine. The name *Glycyrrhiza* is derived from the Greek terms 'glycol', meaning sweet, and 'rhiza', meaning root. It is native to the Mediterranean region and grown in India, China, Spain, Iran, Russia and Italy.

Liquorice is also known as,

Jothi-madhand Mulaithi (Hindi), Licorice, Licorices, and Sweet wood (English), and Licorice, Licorices, and Sweet wood (Sanskrit).

Liquorice is the source of polysaccharides and simple sugars, proteins, amino acids, mineral salts like calcium, sodium, potassium, iron, zinc, copper, phosphorous, magnesium, manganese, silicon, and selenium. It also contains vitamins like B1, B2, B3, B5, E and C. Pectin's, starches, resins, and gums are also present. The thinning epidermal layer and the loss of collagen and elastic fiber lead to wrinkle formation and cause aging. Aging occurs due to intrinsic factors like genetics, cellular metabolism, hormone, and metabolic processes, or extrinsic factors like sun exposure, smoking, diet, and pollution. Many people have chosen natural herbs rather than plastic surgery or laser therapy to look younger and reduce complications in the last few years.

Plants supply nutrients required for healthy skin, helping the biological functioning of the skin. In addition, phytochemicals derived from plants showed skin beneficial properties related to UV protection.

• WHAT IS BODY WASH

- **Body Wash** is a specialized liquid product used for cleaning the body during showers. Not to be confused with liquid soaps, shower gels, etc., do not contain

saponified oil. Instead, it uses synthetic detergents derived from its petroleum plant sources.

- Body washes and shower gels have a lower pH value than the traditional soap.

AIM

Liquorice herbal body wash

OBJECTIVES:

- 1)The use of natural ingredients to remain healthy and of good appearance.
- 2)Removal of Dead cells.
- 3)Improves skin tone & Texture.
- 4)The skin surface requires frequent cleansing to remove oil sebum and other secretion.

NEED OF WORK: -

They are high in antioxidant and antibacterial properties and hence helping in giving a plump skin and natural glow. They can be used in multiple forms depending on the skin type. Pomegranate scrubs are a great pick for people with oily and acne prone skin. Pomegranate scrub is rarely available in market & in available it is expensive hence our product is cost efficient and made with simple ingredients.

Table: (1) List of Ingredients

INGREDIENT	USES
Liquorice extract	Skin soothing and lightening
Almond oil	Stimulate the production of new skin cells and smooth fine lines, emollients

Glycerine	Emollients
Multani mitti (fuller earth)	Skin lightening
Eucalyptus	Vasodilator nature
Tulsi extract	Anti-infective
Aloe vera	Antioxidant

Liquorice extract brightens the skin in another way, too. "It contains liquiritin, an active compound that helps to disperse and remove existing melanin in the skin".

Explains Chalking. In other words, not only can it help prevent new spots from forming.



Liquorice:

- **Kingdom:** Plantae
- **Botanical name:** Glycyrrhiza glabra
- **Genus:** Glycyrrhiza
- **Species:** G. glabra
- **Family:** Leguminosae (Fabaceae)

BENEFITS OF LIQUORICE: -

Liquorice root contains over 300 chemical compounds and flavonoids. Glycyrrhizin, the most active chemical compound found in liquorice, has been studied for its medicinal properties. This powerful phytochemical has been proven to reduce body fat, heal stomach ulcer and fight infections.

- Against microbes:

Many laboratory studies suggest that liquorice extract might be a potential treatment against bacterial infection. Liquorice extract has shown promising results against *Candida albicans* and *Staphylococcus aureus* infections.

- **For inflammation:**

Inflammatory illnesses are becoming common and have a significant impact on daily life. Flavonoids found in liquorice can be used as a potential medication for inflammation. Liquorice extract has shown anti-inflammatory benefits to manage various diseases, like acute kidney disease. ISL has shown anti-inflammatory benefits in kidneys.

ALOE VERA



Kingdom : Plantae

- **Botanical Name :** *Aloe barbadensis* miller
- **Genus:** *Aloe*
- **Species:** *A. vera*
- **Family :** Liliaceae
- **Pharmaceutical name:** Herba Aloes
- **Properties:** Bitter Cold
- **Toxicity:** Chronic long-term toxicity

BENEFITS OF ALOE VERA:

- It has antioxidant and antibacterial properties.
- It accelerates wound healing.

- It reduces dental plaque. It reduces constipation.
- It may improve skin and prevent wrinkles.
- It lowers blood sugar levels.

TULS



- **Synonyms:** Holy basil, Sacred basil.
- **Biological source:** Tulsi consists of fresh and dried leaves of *Ocimum sanctum* Linn.
- **Family:** Lamiaceae.
- **Chemical constituents:**

- Tulsi leaves contain bright, yellow colored and pleasant volatile oil (0.1-0.9%). the oil contain of the drug varies depending upon the type, the place of cultivation and seasons of its collection.

- The plant is also reported to contain alkaloids, glycosides, saponin, tannins, and appreciable amount of vitamin C, and traces of maleic, citric and tartaric acid.

- Seeds contain fixed oil with good drying properties.

- **Uses:**
 - The fresh leaves, its juice and volatile oil are used for various purposes.
 - The oil is antibacterial and insecticidal.
 - The leaves are used as stimulant aromatic. The juice is used as antiperiodic and as a constituent of several preparation for skin diseases and also to cure ear-ache.



• **BENEFITS OF MULTANI MITTI:**

Multani mitti also known to have many medicinal properties.

These include-Anti-acne property, Anti-inflammatory property Astringent property, Absorbent property, Anti-microbial property Skin brightening property.

FOR SKIN:

- Multani mitti can help tone the skin. As a result, wrinkles, loose skin, and other signs can't be reversed
- multani mitti achieves this by increasing skin elasticity and making it more robust.
- It is a cooling herb with a skin-soothing effect.
 - Multani mitti is an excellent remedy for skin bothered by hot temperature sand sun burns. This cooling effect occurs quickly and lasts for a long time.
- Multani mitti is often used to improve the complexion.
- It is useful to erase scars.
- It also helps to prevent suntan and pigmentation.

FOR ACNE:

- Multani mitti is an effective home

remedy for pimples or acne, as well as marks left by healed acne.

- This clay should be used daily to keep the skin clean and healthy.
 - Multani mitti absorbent properties aid to eliminate excess oil from the skin and prevent pimples. This also has a cleansing effect and helps to remove debris and pollution particles from the skin.

EUCALYPTUS



- **Synonyms:** Lemon gum tree, Dinkum oil.
- **Biological source:** Eucalyptus oil is the volatile oil obtained by the distillation of the fresh leaves of Eucalyptus globulus and other species of Eucalyptus.
- **Family:** Myrtaceae.
- **Colour:** it is colorless or pale-yellow liquid.
- **Odour:** Aromatic and camphoraceous.
- **Taste:** Pungent and camphorous followed by the sensation of cold.
- **Chemical constituents:**
 - It is soluble in 90 per cent alcohol, fixed oils, and fats and in paraffin, but it is insoluble in water.
 - Eucalyptus oil chiefly contains cineole, also known as eucalyptol (about 80%).
- **Uses:**
 - Eucalyptus oil is used as counter-irritant, an antiseptic and expectorant.
 - It is used to relieve cough and chronic

bronchitis in the form of inhalations.

- It is an ingredient of several liniments and ointments.

-Solution of eucalyptus oil is used as a nasal drops.

ALMOND OIL



- **Synonyms:** Badam tail, bitter almond oil.
- **Biological source:** It is a fixed oil obtained by expression of seeds of *Prunus Amygdalus* and /or *Prunus Amygdalus var. amara* (bitter almond) or mixture of both.
- **Family:** Rosaceae.
- **Colour:** colorless to pale yellow colored liquid.
- **Odour:** characteristics.
- **Taste:** bland and characteristics, may be bitter or sweet, depending on variety.
- **Solubility:** Insoluble in alcohol and soluble in chloroform, solvent ether and petroleum ether.
- **Chemical constituents:**
 - Both the varieties of almond contain 40-50% of fixed oil.
 - 20% protein and mucilage.
 - The fixed oil contains majorly unsaturated fatty acids such as 62-68% of linoleic acid.
- **Uses:**
 - Used commercially for many toiletry preparations such as soap, shampoo, hair oil.
 - Sweet oil of almond is nutritive and mild laxative.

- Volatile oil of almond is used as flavouring agent.

Review of Literature

- *Glycyrrhiza glabra*, an extract in the other medical products in several European nations such as Germany, Austria, Netherlands, Austria, and Norway.
- A *Liquiritiae radix* soft extract has been on the market in Germany as traditional medicinal medicine, orally used to promote gastric function, at least since 1976.
- According to the German Standard Marketing Authorization procedure, numerous combination products, primarily with *Hedera helices folium* and *Thyme herbal*, are on the market in the form of herbal teas.
- In France, two combos are available; first, *glycyrrhiza* extract in conjunction with *levomenthol*, which is used to ease throat irritations.
- The second one is an herbal tea with *liquiritiae radix* and *Melissa*, traditionally utilized to aid digestion.
- *Liquorice* comes in a variety of forms to treat various diseases, including dried root infusions and decoctions.
- The *liquorice* doses vary depending upon the type of preparation and health problem. Three times a day, *liquorice* 1.0 to 5.0g of dried root powder is recommended for asthma. *Liquorice flavonoid oil*, *glycyrrhizin*, GA, and specific *liquorice* preparations have potent hepatoprotective activities.
- Japan and China have developed *glycyrrhizin* as a hepatoprotective medication.
- GA has been shown the properties of hepatoprotective effect.
- The metabolic process in the human body converts GA into *glycyrrhetic acid*; thus,

glycyrrhetic acid and GA have the same pharmacological properties.

- Liver regeneration could be aided by the expression of proliferating cell nuclear antigen that GA increases.
- Glycyrrhizin might be a potent medication protecting the liver from endotoxin-induced damage, particularly after a large hepatectomy.

MATERIALS AND EQUIPMENT USED: -

1) **Mortar & Pestle:** Mortar & pestle was used in the preparation of body wash. It is one of the ancient methods for many preparations & extracts.

2) **pH meter:** pH meter instrument was used to check the pH of the preparation. The model number of pH meter used was MK VI.

3) **Brookfield Viscometer:** Brookfield viscometer was used to check the viscosity of the preparation of body wash. The model number used to check the viscosity was Brookfield Viscometer DLV 100.

METHOD OF PREPARATION: -

Collection of Plant Material:

Identified fresh leaves of plants were collected from herbal garden of Aurangabad.

Collection of liquorice extracts:

Liquorice extracts were collected from local market.

Preparation of Extract:

Preparation of Liquorice Extract:

Liquorice extract was prepared by using mortar and pestle apparatus. Liquorice was washed and crushed & extract was collected using muslin cloth.

Preparation of Tulsi Extract: Tulsi extract was prepared by using mortar and

pestle apparatus. Tulsi leaves were washed and crushed & extract was collected using muslin cloth.

- **Preparation of Aloe-vera Gel:** Fresh aloe vera leaves collected and remove the gel manually. Gel was grinded into Liquorice extract Skin soothing and lightening Almond (Oil) Stimulate the production of new skin cells and smooth fine lines. Emollients Glycerin Emollients, Multani mitti [fuller earth] Skin lightening, Eucalyptus Vasodilator nature, Tulsi (Extract) Anti- infective, Aloe vera Antioxidant, mixer to get a homogeneous form.



Extract of Tulsi.



Extract of Aloe vera

Table (2): Formulation Table

Sr. No	Ingredients	Quantity
1	Liquorice extract	5gm

2	Almond oil	2.5ml
3	Glycerine	1.25ml
4	Eucalyptus oil	0.5ml
5	Neem Extract	0.5ml
6	Tulsi Extract	1.25ml
7	Aloe vera Extract	0.49ml
8	Castile soap base	100gm
9	Rose Essence	1ml
10	Demineralized Water	32.8ml

- **Preparation of Carbopol Base:**
- **Preparation of Scrub:**

Step1- Mixed multani mitti, almond oil, glycerin and castile soap base in a separator beaker.

Step2- Mixed crushed liquorice extract, neem extract, tulsi extract, aloe vera gel and eucalyptus oil, rose essence in another container.

Step3- Add essence oil in little quantity of alcohol, add aloe vera gel in the mixture and triturate well in pestle mortar.

Add the contents of steps 1, 2 into 3 with gentle continuous stirring in a pestle mortar.

Add demineralized water gradually till a semi solid consistency preparation was not formed



Evaluation parameter of body wash: -

1.Organolepticproperties

A) **Color-** The color of preparation of body wash was checked.

B) **Odour-** The odor of formulation was checked.

C) **Consistency-**The consistency of the formulation and particles were used to check the texture and homogeneity of preparation on the skin such as stiffness, grittiness, greasiness effect.

D) **Homogeneity and texture:** - Homogeneity & texture was evaluated.

1. **Washability-** The wash ability test was performed by applying on the skin and results were checked.

2. **pH-** pH of 1% aqueous solution of formulation was evaluated.

3. **Viscosity-**For Viscosity measurement, Brookfield viscometer “Heelpath” Spindle used, and result were evaluated.

4. **Spreadability-** Spreadability of the formulations was evaluated.

5. **Skin irritation-** Skin evaluation test was performed.



Steps to Use A Body Wash

Step1: Rinse Off. Start by getting your skin wet in the shower.

Step2: Wash Your Hair. You may be surprised to learn that you should wash your hair before washing your body.

Step3: Lather Up.

Step4: Wash Up.

Step5: Rinse & Dry.

Table (3): Myths & Facts About Face Scrub

Myths	Facts
Scrubbing damage your skin	Scrubbing does not mean damaging your skin. Only if the scrub contains large and sharp grinding particles, it can cause tears in your skin. Applying extreme pressure while massaging the scrub can be harmful too the dead skin cells.

on during scrubbing is normal	If your body wash contains peppermint or menthol kind of ingredients, then a cooling sensation is normal. If not, then the tingling simply means that the ingredients do not suit your skin
--------------------------------------	---

Table (4): RESULTS AND DISCUSSION: -

Sr.no.	Parameters	Observation
1	Color	Pinkish brown
2	Odour	Characteristics as rose
3	Consistency	Good
4	Homogeneity & Texture	Good
5	Washability	Easily Washable
6	pH	7.2
7	Viscosity	29970 cps at 20 rpm
8	Spreadability	Easily Spread
9	Skin Irritation	Non- Irritant

RESULT & DISCUSSION

- The formulated herbal body wash was evaluated at different parameters. All the organoleptic properties were checked visually such as color, odor, consistency, homogeneity and texture.
- As a result, colour observed as pinkish brown, no bad smell occurred from formulation.
- The consistency of the formulation found suitable as required to apply on skin.
- Particles were used to check for the texture and homogeneity of preparation on skin found good and satisfactorily as the preparation show grittiness, greasiness properties on skin.
- Wash ability properties found good, as it is

easily removed by washing with normal water. pH of the formulation checked and found 7.2 means suitable for skin.

- Spread ability quality also tested with the help of glass plates and found that preparation having good consistency and easily spreadable.
- No irritation, redness, edema and any dermatological effects observed on skin.
- Viscosity testing is a very important parameter for quality control.
- Manufacturers can predict how products will behave once they are in the hands of the consumer.
- Viscosity was checked and result found as 29970 cps at 20 rpm.
- Drug absorption from topical product is highly affected by product viscosity.
- Flow rate of material during manufacturing process can influence the selection of mixing equipment.

CONCLUSION AND SUMMARY

- From the above results it is concluded that new formulation herbal body wash can be safe to use and the liquorice used as soothing agent and lightening agent showing good effects and as mostly ingredients are natural ingredients so chances for side effects are less.
- It can be used for any type of skin i.e., normal, oily and dry.
- It gives best results, cleans body make the skin glowing and healthy.

REFERENCES

1. C.K. Kokate, *International Journal of Recent Scientific Research A.P. Purohit, S.B. Gokhale Book of Pharmacognosy, Nirali Publication, November 2018, Page no 9.9 – 9.16*
2. <https://restorativemedicine.org/library/monographs/licorice/>
3. *A Text Book of Pharmacognosy & Phytochemistry - II, Nirali Prakashan, By Dr. Prabodh Shukla, Dr. Shashi Alok, Dr. Padmini Shukla, Page no 4.7- 4.10*
4. C.K. Kokate, *International Journal of Recent Scientific Research A.P. Purohit, S.B. Gokhale Book of Pharmacognosy, Nirali Publication, November 2018, Page no 11.42 – 11.43*
5. C.K. Kokate, *International Journal of Recent Scientific Research A.P. Purohit, S.B. Gokhale Book of Pharmacognosy, Nirali Publication, November 2018, Page no 14.69 – 14.70*
6. *A Text Book of Pharmacognosy & Phytochemistry - II, Nirali Prakashan, By Dr. Prabodh Shukla, Dr. Shashi Alok, Dr. Padmini Shukla, Page no 8.8 – 8.9*
7. C.K. Kokate, *International Journal of Recent Scientific Research A.P. Purohit, S.B. Gokhale Book of Pharmacognosy, Nirali Publication, November 2018, Page no 11.33*
8. <https://www.google.com/url?sa=t&source=web&rct=j&url=http://herbfinder.himalayaweellness.in/herbalmonograph/eucalyptus.htm&ved=2ahUKEwjwuYD93KL AhVQdd4KH RscAjgQFnoECCwOAO&usg=AOvVaw2d5A4eHoZ xepXLLvK SSEc>
9. https://www.google.com/url?sa=t&source=web&rct=j&url=https://en.m.wikipedia.org/wiki/Eucalyptus_oil&ved=2ahUKEwimyvKW36L AhWWVd4KHV6lDecOqa4BegOIPR AA&usg=AOvVaw0X63SkEGUXpVEF84 36fHc
10. *A Text Book of Pharmacognosy & Phytochemistry - II, Nirali Prakashan, By Dr. Prabodh Shukla, Dr. Shashi Alok, Dr. Padmini Shukla 2.94 -2.96*
11. *Herbal Drug Technology, S.S. Agrawal, M. Paridhavi, 2nd Edition 2012*
12. *Neem oil* <https://g.co/kgs/zG9sfB>
13. https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.drugfuture.com/Pharmacopoeia/USP32/pub/data/v32270/usp32nf27s0_m1510.html&ved=2ahUKEwjRj-zR4qL AhUV62EKHb-eBKcQFnoECA4OAO&usg=AOvVaw0eS2AShIB4ic DaAo9O8mIs
14. https://www.google.com/url?sa=t&source=web&rct=j&url=https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2763764/%23~:text=%3DThe%2520botanical%2520name%2520of%2520Aloe,%252C%2520Asia%252C%2520Europe%2520and%2520America.&ved=2ahUKEwiCq_j24qL AhXGD94KHfK7A0UOFnoECDs OBO&usg=AOvVaw3q0s5USKKl OwItigg9hLH8