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# Introduction and Extraction Methods for Polyherbal Face Wash Formulation

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**Abstract:** A cleanser is a product that is used to get rid of make-up, lifeless skin cells, oil, dust, and different types of bacteria, microbes from the pores and skin of the face. This facilitates to unclog pores and prevent skin situations which includes zits. In the present work an try became made to formulate & evaluate face wash. Due to the fast improvement of urban towns inside the current many years the extent of pollution within the air has elevated exponentially, disturbing the development of new versions of private care merchandise. Face being most exposed a part of the body, comes in touch with pollutants very without difficulty making it hard to hold a healthy, brilliant and clear skin. The facial pores and skin is thinner and extra fragile in comparison to the relaxation of the frame. A cleansing product in particular formulated for face have to be used which will maintain the moisture and pH stability of skin. Activated charcoal has homes of deep cleansing and adsorbing impurities. This makes it a beneficial component for pores and skin care merchandise. Acne is one of the maximum typical pores and skin disorder affecting nearly all teens, as it's miles persistent with frequency remission and exacerbations is regularly associated with terrible psychological consequences, finished shallowness and social withdrawal. The Modern measures concerning the treatment of acne are extra or much less failure. Further it has some barriers, cost effective and plenty of side results. To triumph over from a lot of these, a very good natural technique ought to be reached. So we decided to use Luffa Cylindrica oil, Manjistha, Carrot, guava seed extract, Turmeric oil.

**Keywords:** Luffa Cylindrica, Manjistha, Carrot, Turmeric, Guava Seed, PH Stability

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## 1. Introduction

Face wash are made from fresh herbs or end result to enhance the skin health and decorate beauty. Face wash improves stream and clean out the complete face. Preventing acne regularly calls for a delicate balance of moisturizing and oil control, exfoliation and cellular renewal and a staple in any skincare routine, otherwise involve washing your face two times in keeping with day once in the morning and once at night.

This help to clear away particles, bacteria and sebum that clog pores and causes skin to appearance cloudy or to expand zits. Face wash fight with acne. Some prevent pimples whilst finishing strains and wrinkles. Some are designed to do nothing but sincerely cleanse the pores and skin. Other factors demanding or worsening the zits situations are secondary infections caused by a few pathogenic strains of

micro organism like Staphylococcus aureus, Pseudomonas aeruginosa, Escherichia coli etc. There are numerous topical and systemic healing procedures available in market to deal with or manage the acne however most of them have the facet outcomes like itching, redness, skin peeling, stinging and photosensitivity. Again, the improvement of resistance of available antibiotics for Propionibacterium pimples and different bacterial traces has necessitated the look for new antimicrobial agents<sup>6</sup>. Medicinal plant life were used as a supply of acne treatments due to the fact historical times and they have shown exceptional guarantees within the treatment of infectious sicknesses. [1] It enables to get rid of useless pores and skin cells that allows new pores and skin cells update vintage one It facilitates to preserve pores and skin sparkling and wholesome. It makes the pores and skin to appearance radiant The mixture of dead pores and skin cells and immoderate oil clog pores, that can lead to acne white

heads, blackheads and general weary appearance. Exfoliating the pores frequently, avoids all of the above pores and skin troubles. Removing useless skin cells meaning your pores and skin will develop wrinkles at a slower pace. [2]

Ayurveda shows the function of diverse herbs like amla, turmeric in cosmetic arrangements. Ladies of 18th century, Europe, deepwhite their faces with lead carbonate with out knowing what damage they had been doing to themselves a lot of them died from lead poisoning. [3] The herbal recovery has been showed from the ancient generation, from Vedas, and even from historical spiritual work. Probably it is the

oldest hospital treatment system inside the world. The natural recovery offers with use of herbs, herbs extracts or natural products for the better of fitness condition. Nowadays in western countries clinical practitioners and normally prescribing drugs containing plant extract. Developed countries additionally appreciating this traditional and ancient form of medication. As a result, Indian herbal pills are in demand and witnessing speedy growth in international market. Wide increase and demand for natural cures, herbal pores and skin care merchandise and even natural cosmetics had been located in recent years. [4]

**Table 1.** Scientific name & uses of ingredients.

Common Name	Scientific Name	Uses
Guava seed extract	Psidium guajava	Antioxidant, Antiacne
Turmeric extract	Daucus carota	Anti inflammatory, Antimicrobial
Carrot extract	Curcuma longa	Skin whitening, Glowing skin
Luffa cylindrica	Luffa aegyptiaca	Antibacterial, Antioxidant
Manjistha	Rubia cordifolia	Antiacne, Antibacterial

## 2. Materials and Methods



**Figure 1.** Guava seed.

### 1. Guava seed extract

*Psidium guajava*, a widely recognized conventional herbal plant utilized in various indigenous system of medicine and herbs, additionally referred to as Guava belonging to family Myrtaceae. [5] It is showed by using about one hundred thirty-one hundred fifty species and widely allotted at some point of the world wide. [6] All components of the plant life being used as herbal purpose, the elements like fruits, leaves, bark and root were used to treat diarrhea and used as stomachache, breathing and gastrointestinal issues as antispasmodic, anti-inflammatory, as cough sedative, in obesity, to control diabetes mellitus. Seeds possess antimicrobial, [7] anti-inflammatory, [8] anti-allergic, and anticarcinogenic activity. [9] Guava is yellow in shade and as a result of its abundance and reasonable fee it's far eaten through all quarter by way of the society. The important guava fruit product are drinks, juices, and canned slices. The vital components of guava are vitamins, tannins, phenolic compounds, critical oils sesquiterpene alcohol and triterpenoids. The seed are the waste fabricated from the industry and are not yet use for the Any useful purpose. Guava seed had been pronounced to incorporate 14% oil, 15% protein and thirteen% starch. [10] It also consists of

flavonoids. Among these phytochemicals phenolic compounds are the most not unusual in nature. [11]

### Extraction of oil

Seeds had been taken (100g) and subjected to alcoholic extraction, Soxhlet Extraction is used then, charge become allowed to evaporate extra of solvent underneath rotary vacuum evaporator till clear liquid (Oil) is obtained. Then the oil extract became then re-dissolved in ethanol at 1 mg/ml ratio and used for formulating the Face wash.

### 2. Turmeric

Synonymous is *Curcuma longa* is a native plant of southern Asia and is cultivated substantially for the duration of the hotter elements of the international. It belongs to family Zingiberaceae. Rhizomes of turmeric plant include three-four% unstable oil with unique aromatic traits. Curcumin is the primary biologically active carcinoid phytochemical compound of turmeric that is chargeable for yellow shade of the basis. In reality, it is the curcuminoids that possess all the bio-protecting residences in turmeric. [12] Turmeric has long been used as good anti-inflammatory in both the Chinese and Indian structures of herbal and medicinal use. [13] Turmeric is also documented to have wound recovery potential. [14]



**Figure 2.** Turmeric.

### Extraction of oil

#### A. Hot extraction

10 gm of organized turmeric crush powder changed into taken in a thimble made from a clear out paper. Thimble is

equipped in soxhlet meeting for extraction. After eight hours extraction manner at 70°C with ethanol, a semisolid sticky, darkish brown coloration of haldi extract became received in an oil flask. Obtained extract in oil flask become transferred in a tube with the assist of including a few ethanol which became further allowed to evaporate at room temperature. Resulted extract have been used to prepare inventory answer in distilled water containing one hundred mg of curcumin extract according 2ml of distilled water, which were further used for the double dilution process.

#### B. Cold extraction

Prepared Curcumin powder changed into taken in a conical flask and a hundred millilitre ethanol become delivered and kept at room temperature for one week, occasional shaking become achieved. Such organized answer changed into filtered with muslin material and then with clear out paper. Ethanol changed into allowed to evaporate until we obtained semisolid extract. Because of hydrophobic nature of curcumin extract few ml of tween-80 and few mg of carboxy methyl cellulose were introduced to make the even suspension of Curcumin extract.

#### 3. Carrot

Wild carrot, *Daucus carota* (Apiaceae) is a spiny-fruited herb that in particular grows in slight regions of Europe, Asia, Africa and America. [15] The plant is traditionally utilized in Lebanon for the treatment of gastric ulcer, diabetes and muscle pain. While the commonly edible carrot, *Daucus carota* L. Ssp. *Sativus*, has been significantly studied, little is recognised approximately *Daucus carota* (wild carrot). Few studies, but, confirmed promising therapeutic potentials of this plant. For example, wild carrot has been suggested to possess antilithic and diuretic homes and has been used to treat urinary calculus, cystitis, gout. [16] In European folks remedy, it is used as a urinary antiseptic and anti inflammatory treatment for cystitis and prostatitis. [17] Studies on rats confirmed a shielding effect of the wild carrot against carbon tetrachloride (CCl<sub>4</sub>) prompted liver toxicity. [18] Essential oils from different parts of untamed carrot plant also showed an powerful anti-bacterial and antifungal hobby in opposition to several bacterial and fungal species. [19]

Recently, we stated that the aqueous and metanolic extracts of untamed carrot umbels exhibited anti inflammatory, anti-ulcer and anticancer. [20]



Figure 3. Carrot.

It is obtained from the plant *Daucus carota* belonging to family Apiaceae. It is a treasured herb in view that ages as it is good herbal supply of Vitamin A together with other

crucial vitamins. Carrot seed oil is indicated for anti-getting old, revitalizing and rejuvenating. As it promotes the formation of latest cells and helps in decreasing wrinkles, dead skin cell. It acts as Natural toner and rejuvenator for the pores and skin. [21]

#### Extraction of oil

Mature umbels of *Daucus carota* (Linnaeus) have been gathered at the post flowering duration among August and September from their natural habitat in Lebanon. [22] Stripped umbels had been air dried in the shade after which cut into small portions for oil extraction. Leaves had been soaked in methanol/acetone (1:1) for two weeks. The extract become then filtered and evaporated to dryness under reduced pressure. The residue become centrifuged, and the oil was dried over anhydrous sodium sulfate. The final yield (3.47%) changed into stored in a closed amber bottle at four C till use.

#### 4. *Luffa Cylindrica*

*Luffa cylindrica* belongs to family Cucurbitaceae is used as a not unusual vegetable. They are local to maximum nations around the arena, especially the tropics, where they may be grown in every kingdom, kingdom, and province. The phytochemical elements found in *Luffa cylindrica* are glycosides, flavonoids, triterpenoid, phenolic, ascorbic acid, carotenoids, saponins, carbohydrates, proteins, alkaloids, and tannins etc. The *Luffa cylindrica* possesses several pharmacological activities together with antioxidant, anti-inflammatory, antibacterial, wound recovery, and plenty of more. The biologically active factor purporting to have skin care advantages and may be utilized in products which include moisturizers, anti-getting older, anti-inflammatory cream, facial cleanser, frame oil, sponge cleaning soap, and many others.

The purpose of this newsletter of *Luffa cylindrica* is to focus on beauty significance and its advantages. There is increasing skincare problem to keep overall pores and skin in healthful and wonderful situations and to take away pimples, scarring, darkish spots, and so on. The extra interest is being paid closer to the usage of natural plants taking gain of their abundance, availability, and its safety and price-effectiveness. [23]



Figure 4. *Luffa Cylindrica*.

#### Uses

##### A. Antioxidant

Antioxidants are compounds that combine to save you oxidative damage to cells and tissues by way of neutralizing reactive oxygen species. [24] The antioxidant effect acquires via the use of numerous natural solvent extracts of leaves of *Luffa cylindrica*. [25]

### B. Anti-inflammatory

Anti-inflammatory is the belongings of a substance or remedy which decrease swelling or inflammation. Flavonoids own anti-inflammatory interest. Ethanol extract of *Luffa cylindrica* leaves became located to have the highest quantity of flavonoids, saponins, and triterpenes as studied via Rotelli *et al.*, Mahato *et al.*, Safayhi and Sailer *et al.* Respectively. The extract changed into located to have anti-inflammatory impact. [26]

### C. Sunscreen effect

Human pores and skin is greater severe between 10 am and 2 pm, for the duration of the summer season months. [27] UVA (320-400nm) can penetrate deeper into the skin at the same time as the UVB (290-320nm) can best affect the superficial layer of the skin. [28] *Luffa cylindrica* act as image protectants whilst carried out to the pores and skin before publicity to ultraviolet radiation. [29]

### D. Wound healing activity

Wound recovery pastime of the complete plant of *Luffa cylindrica*. Chloroform extract became observed to have wound healing interest by reduction of wound vicinity and duration of epithelization. [30]

### Extraction of oil

The coarse meal from the seeds may be delivered into the solvent extraction for 5h at fifty five–60°C the usage of the Soxhlet extraction approach. The oil solutions can be filtered the usage of a Buchner funnel, weigh and placed into properly-closed containers. At the end of the extraction, the ensuing mixtures containing the oils can be heated to get better the solvent from the oil.

### 5. Manjistha

*Rubia cordifolia* Normally known as Indian Maddar is a perennial, herbaceous prickly climber with lengthy and cylindrical root with a skinny purple bark, well regarded for its versatile motion. It is shipped inside the Himalayas from Kashmir and Nilgiris and different hilly districts of India. [31] Manjistha makes an fantastic face percent. The finely overwhelmed root powder along with little honey implemented to stand for recuperation pores and skin tissues damaged by using damage or contamination. The root powder blended with ghee, for the medicament of acne. [32] Vanraji tribes of Kumaun Himalaya use the entire plant pulp rubbed with honey to treat for acne and dark spots on face. [33]

### Uses

- 1) It is used as astringent and useful in external inflammations like ulcer and skin illnesses. [34]
- 2) The anti inflammatory action is due to the presence of rubimallin. The aqueous extract confirmed anti-inflammatory interest in rats with carrageenan paw oedema in a dose based way, which is comparable to that of phenylbutazone. [35]
- 3) The use of herbal treatments, specifically herbal remedy, dates again heaps of years. Over the final decade, in view of increasing resistance to present anti-microbial marketers, aspect outcomes and sometimes excessive cost of treatment, interest in medicinal herbs has been regularly will increase.

- 4) The anti-zits consequences of Manjistha (*Rubia cordifolia*) include 4 mechanism is Anti-bacterial, anti inflammatory, antioxidant, and anti-androgen sports. [36]



Figure 5. Manjistha.

### Extraction procedure

Collect the *Rubia cordifolia* roots (Manjistha). Air drying under sunshine was performed. Air dried roots were powdered Mechanically (grinding). 500 gm of powdered drug in three batches (200, 200, 100 g) were extracted successively in ethanol by continuous extraction process (Soxhlet apparatus) at 65°C for 6 hours. After completion of extraction it was filtered & the solvent was removed by rotator evaporator. A dark brownish gummy mass of both the extract of *Rubia cordifolia* was obtained. It was stored in close container at room temperature. [37]

## 3. Conclusion

The herbal face wash was prepared by using various herbs like *Luffa cylindrical*, Turmeric, Manjistha, Carrot seed oil, guava seed oil. The herbal face wash is more efficient and safe as compared to the marketed face wash. At this formulation contains all herbal ingredients it neither produces any harmful action on skin and are reliable. Preferably they are used for all skin types. It help to moisturize the skin. Herbal face wash not only moisturised but also they are used as a cleanser.

## References

- [1] Yash Roy RC, Gupta PK, Ind J of Toxicol, 2000, 7 (1): 49-50.
- [2] P. P. sharm “cosmetics-formulation, manufacturing and quality control” by Vandana publication third edition page no. 142.
- [3] Sanju nanda, arun nanda, roop k. khar. “Introduction and design of the study, cosmetics Technology”, birla publication first edition 2006-2007 Page no. 243.
- [4] Rashmi MS. Topical gel: A review. Pharm Rev, 2008; 6: 1–3.
- [5] Wilson, PG, O’Brien, MM, Gadek, PA: Myrtaceae Revisited: A Reassessment of Intrafamilial Groups. American Journal of Botany 2001; 88: 2013-2025.
- [6] Swain, Tony, Ed: Plants in the Development of Modern Medicine. Harvard University Press. ISBN 1968, 0-674- 67330-1.
- [7] Pelegrini PB, Murad AM, Silva LP, Dos Santos RC, Costa FT, *et al.* Identification of a novel storage glycine-rich peptide from guava (*Psidium guajava*) seeds with activity against Gram-negative bacteria. Peptides 2008; 29: 1271-1279.

- [8] Metwally AM, Omar AA, Harraz FM, El Sohafy SM, Phytochemical investigation and antimicrobial activity of *Psidium guajava* L leaves. *Pharmacogn Mag* 2010; 6: 212-218.
- [9] Huang CS, Yin MC, Chiu, LC, Antihyperglycemic and antioxidative potential of *Psidium guajava* fruit in streptozotocin-induced diabetic rats. *Food Chem Toxicol* 2011; 49: 2189-2195.
- [10] Nutritiondata.com. Nutrition facts for common guava. Retrieved August 17, 2010.
- [11] Castro-Vargas HI, Rodríguez-Varela LI, Ferreira SRS, Parada Alfonso F, Extraction of phenolic fraction from guava seeds (*Psidium guajava* L) using supercritical carbon dioxide and cosolvents. *J Supercrit Fluids* 2010; 51: 319-324.
- [12] Badmaev, V., Majeed, M., Prakash, L. (2004) Curcuminoids: bioactive compounds from turmeric. Sabinsa Corporation, 2.
- [13] Gescher, A., Sharma, R. and Steward, W. (2005) Curcumin: the story so far. *European Journal of Cancer* 41 (13): 1955-1968.
- [14] Biswas, T. K., Mukherjee, B. (2003) Plant medicines of Indian origin for wound healing activity: A healing review. *International Journal of Lower Extremity Wounds* 2 (1): 25-39.
- [15] Mitich LW. Intriguing world of weeds: Wild carrot (*Daucus carota*L.). *Weed Technol* 1996 (10): 455-457.
- [16] Barnes J. 1998. Herbal medicine. *Pharm J* 260: 344-348.
- [17] Hoffman D. 1990. *The New Holistic Herbal* (3rd edn). Element Shaftesbury Dorset: Great Britain.
- [18] Handa SS. 1986. Natural products and plants as liver protecting drugs. *Fitoterapia* 57: 307-351.
- [19] Staniszevska M, Kula J, Wiczorkiewicz M, Kusewicz D. 2005. Essential Oils of Wild and Cultivated Carrots - the Chemical Composition and Antimicrobial Activity. *J Essent Oil Res* 17: 579-583.
- [20] Diab-Assaf M, Mroueh M, El-Sharif S. 2007. Evaluation of anticancer effect of *Daucus carota* on the human promyelocytic leukemia HL-60 cells. In AACR International Conference on Molecular Diagnostics in Cancer Therapeutic Development, Atlanta, USA, p. 61.
- [21] www.agriinfotech.com (Accessed on 29 Nov. 2010).
- [22] Van Wyk B-E, Wink M. 2004. *Medicinal Plants of the World*. Briza Publications: Pretoria, South Africa, pp. 124.
- [23] Tanobe V, Sahagun THS, Amico SC, Muniz GI, and Satyanarayana KG. Sponge Gourd (*Luffa cylindrica*) Reinforced Polyester Composites: Preparation and Properties. *Defence Science Journal*, 2014; 64 (3): 273-280.
- [24] Addor FA. Antioxidants in dermatology. *An Bras Dermatol*, 2017; 92 (3): 356-62.
- [25] Bulbul IJ, Zulfiker A, Hamid K, Khatun H and Begum Y. Comparative study of in vitro antioxidant, antibacterial and cytotoxic activity of two Bangladeshi medicinal plants *Luffa cylindrica* L and *Luffa acutangula*. *Pharmacognosy Journal*, 2011; 3 (23): 23 59-66.
- [26] Kanwal W, Syed AW, A. Salman, Mohtasheem HM. Anti-emetic and anti-inflammatory activity of fruit peel of *Luffa cylindrical* (L) Roem. *Asian Journal of Natural & Applied Sciences*, 2013; 2 (20): 75-80.
- [27] Mishra AK, Mishra A and Chattopadhyay P. Herbal Cosmeceuticals for Photoprotection from Ultraviolet B Radiation: A Review. *Tropical Journal of Pharmaceutical Research*, 2011; 10 (3): 351-360.
- [28] Helfrich YR, Sachs DL, and Voorhees JJ, Overview of skin aging and photoaging. *Dermatology Nursing*, 2008; 20 (3): 177-184.
- [29] Rojas J, Londono C, Ciro Y. The Health Benefits of Natural Skin UVA Photoprotective Compounds Found In Botanical Sources. *International Journal of Pharmacy and Pharmaceutical Science*, 2016; 8 (3): 13-23.
- [30] Abirami MS, Indhumathy R, Devi GS, Kumar DS, Sudarvoli M and Nandini R. Evaluation of the Wound Healing and Anti-Inflammatory Activity of Whole Plant of *Luffa cylindrica* (Linn) in Rats. *Pharmacologyonline*, 2011; 3: 281-285.
- [31] Gupta AK, Tandon N, Sharma M. *Quality standards of Indian Medicinal Plants*, volume-3, Indian council of medicinal research New Delhi, 2005; 307.
- [32] Joshan RS, Nagarauk R, Anuradha P. Antibacterial properties of extracts of Indian medicinal plants: *Syzygium alternifolium*, *Phyllanthus niruri* *Rubia cordifolia*. *Biomed. Pharmacol. J.* 2010; 3: 123-128.
- [33] Bhatt D, Kumar R, Joshi GC, Tewari LM. Indigenous uses of medicinal plants by the Vanraji tribes of Kumaun Himalaya. India. *J. Med. Plants Res.* 2013; 7: 2747-2754.
- [34] Jain A, Bansal E, Inhibition of *Propionibacterium acnes*-induced mediators of inflammation by Indian herbs, *Phytomedicine*. 2003; 10: 34-38.
- [35] Antarkar SS, Chinwalla T, Bhatt N. Anti-inflammatory activity of *Rubia cordifolia* Linn. in rats, *Indian J. Pharmacol.* 1983; 15: 185-188.
- [36] Oprika C. Characterisation of antibiotic-resistant *Propionibacterium acnes* from acne vulgaris and other diseases. Stockholm: Karolinska. The Fellowship of Postgraduate Medicine, 1999.
- [37] Joharapurkar AA, Zambad SP, Wanjari MM, Umathe SN, alcoholic extract of *Rubia cardifolia* Linn & its influence on ethanol-induced immunosuppression *Indian J. Pharmacology*, 2003; page No. 232-236.