

Formulation and evaluation of herbal soap

¹Mr. Shewale Hrushikesh, ²Prof. Dr. Hingane .L.D

¹Student, ²Guide
Aditya Pharmacy College, Beed

Abstract: Aloe Vera is a natural product that is now a day frequently used in the field of cosmetology. Though there are various indications for its use, controlled trials are needed to determine its real efficacy. The aloe vera plant, its properties, mechanism of action and clinical uses are briefly reviewed in this article.

Herbal soap and hand sanitizer was formulated using the Aloe Vera, Coconut oil, Neem oil, Sunflower oil. Ayurvedic cosmetics are also known as the herbal cosmetics the natural content in the herbs does not have any side effect on the human body. Most herbal supplement are based on several botanical ingredients with long histories of traditional or folk medicine usage. Among the numerous botanical ingredients available in the market today. Numerous chemical toxins microorganism present in the atmosphere may cause chemical infection and damage to skin cosmetics alone are not sufficient to take care of skin and body parts. Aloe vera is natural product which are used in prevention and treatment of various skin Problems. Aloe vera is derived from Arabic words 'Aloe' means 'Shinning bitter substance' and 'Vera' means 'True'. It belongs to the family of 'Alliaceae. Aloe vera is also known as "Ghrit kumari" and many peoples which is used for wellness of health and medicinal purpose. It's involves the health benefits of wound healing treating burns, minimizing front bite damage, protect skin damage from X-rays, Lung cancer, Reduce blood sugar in diabetes and improve immune system. Aloe vera soap as contains various medicinal properties like, anti-septic, anti-microbial, anti-viral anti-oxidant, anti-fungals. Aloe vera plant is triangular, fleshy leaves with serrated edges, yellow tubular flowers and fruits that contains numerous seeds. Each leaf composed of three layer: The first is inner clear gel that contains 99% water and rest is made of glucomannans, amino acids, lipids, sterols, vitamins. The middle layer of latex which is the bitter yellow sap. The outer thick layer of 15-20 cells called as rind. It is use for several skin disease like acne.

Keywords: Aloe Vera, herbals, extraction, formulation, evaluation

INTRODUCTION

The Aloe Vera plant has been known and used for centuries for its health, beauty, medicinal and skin care properties. The name Aloe vera derives from the Arabic word "Alloeh" meaning "shining bitter substance," while "vera" in Latin means "true." 2000 years ago, the Greek scientists regarded Aloe vera as the universal panacea. The Egyptians called Aloe "the plant of immortality." Today, the Aloe vera plant has been used for various purposes in dermatology.

Soaps and designed to remove gre dirt, sweat, sebum and oil from skin

The use of soap like cleansing agent has always been associated with man's inherent instinct to keep his body and other clean Soap help remove salg from skin to make skin a brilliant glow. The principle raw material of soap is oil & fats.

Herbal soap & a medicine or drug contain antimicrobial and antifungal agent which mainly use part of plants like leaves, roots. Fruits and stem. Herbal soaps are made using natural herbs and ingredients that are healthier and beneficial for the skin and are less likely to any damaging effect.

Good quality herbal soap are made wing natural herbs, food grade, vegetable oil, essential oil and other natural ingredients.

The Herbal plant aloe vera of maximum 100 cm in height and mature in 5 to 6 years. Aloe vera is derived from Arabic words 'Aloe' means 'Shinning bitter substance' and 'Vera' means 'True'. It is used for host of purposes since the ancient Egyptians called plant of "Immortality". It is also none as 'Ghrit kumari' in hindi. Aloe vera leaf is use for cure sunburns, burns and skin disease. Aloe vera soap is used to skin care like acane, wound healing and protect sunburn of skin.

What is herbal soap...?

Herbal soaps are organic products made from natural herbs and ingredients that are beneficial and healthier for skin. These soaps are totally chemical free so there is negligible chance of any harmful or side effect from them as these contain natural oils like Almond oil, castor oil, some essential oils like saffron, sandalwood, strawberry, and rose water which are very beneficial for skin whitening, brightening, and smoothening

Herbal cosmetics is defined as the beauty products, which posses desirable physiological activities, such as skin healing, smoothening, appearance, enhancing and conditioning properties with the help of herbal ingredients.

Soap is created by mixing fats and oils with a base, as opposed to detergent which is created by combining chemical compounds in a mixer.



Fig.no. 1

History

The earliest recorded evidence of the production of soap-like materials dates back to around 2800 BC in ancient Babylon. A formula for making soap was written on a Sumerian clay tablet around 2500 BC; the soap was produced by heating a mixture of oil and wood ash, the earliest recorded chemical reaction, and used for washing woolen clothing. The Ebers papyrus (Egypt, 1550 BC) indicates the ancient Egyptians used soap as a medicine and combined animal fats or vegetable oils with a soda ash substance called Trona to create their soaps.[13] Egyptian documents mention a similar substance was used in the preparation of wool for weaving.

Role of ingredients

- **Aloe Vera**



Fig.no. 2

Aloe vera, or *Aloe barbadensis*, is a thick, short-stemmed plant that stores water in its leaves. It is best known for treating skin injuries, but it also has several other uses that could potentially benefit health.

Scientific Classification

Kingdom Plantae
 Family- Asphodeloideae
 Genus- Aloe
 Species- A. Vera
 Binomial name - Aloe vera

Morphology of Aloe vera:

Height – 60 to 100 cm
 Leaves – Thick and fleshy
 Colour – Green to grey green
 Width – 10 cm

Uses

- Aloe Vera helps in keeping your face healthy & gives you a natural shine.
- Aloe Vera is rich in moisturizing properties, it helps in removing dead cells.
- Aloe Vera is very beneficial for the people with dry and cracked skin
- Aloe Vera also prevent or reduce wrinkles and dark spots of your face
- Aloe Vera gives protection against the harmful ultra-violet rays of the Sun, which protects you from Sun burn.
- It has pungative property.
- Treat painful inflammatory manifestation.
- Used to treat and cure radiation Burn.
- Used to treat skin wounds.
- Help to reduce ageing and wrinkles.
- Used to reduce Eczema.
- Help treat fungal infection

➤ **Canola Oil**

Fig.no. 3

Canola oil is extracted from rapeseed and consumed all over the world due to its valuable ingredients.

It has a low amount of saturated and a substantial amount of monounsaturated fats with roughly 2:1 mono to polyunsaturated fatty acids.

In general, it contains 61% oleic acid which is classified as a monounsaturated omega-9 fatty acid, 11% α -linolenic acid and 21% linoleic acid which are omega-3 and omega-6 polyunsaturated fatty acids, and 7% saturated fatty acids.

Canola oil is second to olive oil in oleic acid content and intermediate among other vegetable oils in polyunsaturated fatty acid.

Scientific Classification

Kingdom: Plantae

Family: Brassicaceae

Genus: Brassica

Species: *B. napus*

Binomial name: *Brassica napus*

Morphology of canola oil

Taste- Neutral taste

Colour- Light yellow

Odour- no smell

Uses

Canola oil contains a high level of essential fatty acids, which moisturize the skin and enhance the strength of skin tissue.

It's also rich in Vitamin K, which helps keep the skin supple and smooth, and linoleic acid, which forms a barrier on the skin to keep moisture from escaping.

Canola oil is an affordable option for soap.

It produces a balanced bar with creamy lather. It's also a great substitute for olive oil. You can use canola at 15-40% in cold process.

Recipes: Baby's Breath Soap, Blue Rimmed Soap, Clover and Aloe Spin Swirl Soap

➤ **Coconut oil**

Coconut oil is an important base ingredient for the manufacture of soap.



Fig.no. 4

Soap made with coconut oil tends to be hard, though it retains more water than soap made with other oils and thus increases manufacturer yields.

It is more soluble in hard water and salt water than other soaps allowing it to lather more easily.

Coconut oil contains only trace amounts of free fatty acids (about 0.03% by mass).

Most of the fatty acids are present in the form of esters.

Scientific Classification

Scientific name: *Cocos nucifera*

Order: Arecales

Family: Arecaceae

Kingdom: Plantae

Morphology of coconut oil

Temperature – Below 23 C

Melting point – 23 C – 26C

Soluble at 60 C – Alcohol and highly soluble in chloroform

Coconut oil contain

Fat- 99 g

Saturated- 82.5 g

Monounsaturated- 6.3 g

Polyunsaturated- 1.7g

Vitamin E- 3 mg

Vitamin- K 0,6 µg

Iron- 0.05 mg

Uses

- The oil can be used to treat dryness and sores from saltwater and sunburn.
- It can be used for burning in a torch or dripped into fire to create insect-repelling smoke.
- It also protects metal from corrosion.
- Moisturises skin
- Has antibacterial properties
- Helps treat acne
- Slows skin ageing
- Rich in antioxidants

➤ Sunflower oil



Fig.no. 5

Sunflower oil is a wonderful oil for soap making!

First, this cosmetic oil can be used to add higher conditioning properties for your bar of soap.

Plus, this oil adds a very small bit of hardness and creamy lather to your bar.

So, this oil will add a more stable lather, conditioning, and a silky feel to soap. However, this isn't all this oil is good for in soap.

There are more great properties that sunflower oil can provide! This soap making oil is a perfect addition to batches that accelerate.

Also, recipes that use this oil are perfect for creating designs where you would need more time to work.

This is true because sunflower oil has an ability to slow down trace! Also, the highest recommended amount to add is 25% and know that adding higher amounts of this oil will create a softer bar of soap.

Scientific classification

Scientific name- Helianthus

Kingdom- plantae

Family- Asteraceae

Morphology of sunflower oil

Colour- Amber colour

Taste- Slight nutty flavour

Odour- Slightly Fatty odour

Sunflower oil contains several compounds that have benefits for skin.

They include:

Oleic acid

Vitamin E

Sesamol

Linoleic acid

Uses

- Sunflower oil can help in enhancing the skin's barrier function
- Sunflower oil is high in linoleic acid which may help to treat acne
- Sunflower oil is rich in nutrients and high in vitamin e
- Sunflower oil has anti-inflammatory properties
- Sunflower oil is high in linoleic acid which
- May have a skin brightening effect
- Sunflower oil is good for sensitive skin
- Sunflower oil can help moisture retention in the skin
- Sunflower oil soothes dry, chapped skin 9. Sunflower oil is easily absorbed into skin Sunflower oil contains beta-carotene

➤ **Castor oil**

Fig.no. 6

Castor oil is a thick, clear oil that helps increase the lather in soap – a rich, creamy lather. It's also a humectant (attracts moisture to your skin) oil. Just a little will do...5% - 8% in your recipe will work wonders. Shampoo bars often use 10% -15%...but more than that and you get a soft bar of soap. Castor oil has a fatty acid makeup that's completely unique-which makes what it contributes to your soap (the rich, creamy lather) unique.

Castor oil will speed up the rate at which your soap will get to trace – so we usually leave it out of recipes that require complex swirls or designs.

Scientific classification

Scientific name- Ricinus
Kingdom- plantae
Family- Euphorbiaceae
Order- Malpighiales
Binomial name- Ricinus communis

Morphology of castor oil

Color – Colourless
Odour – Faint
Taste – Acrid
Soluble – Alcohol and highly soluble in chloroform

Uses

- Preventing wrinkles. Castor oil contains antioxidants that fight free radicals in your body. ...
- Fighting acne. Castor oil has antibacterial properties. ...
- Reducing puffiness. ...
- Moisturizing. ...
- Soothing sunburn. ...
- Fighting dry lips. ...
- Promoting overall skin health.

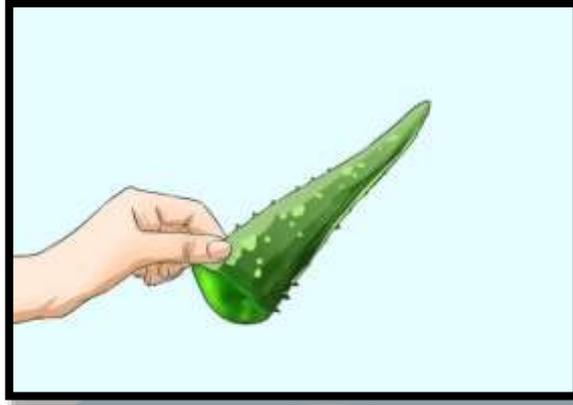
Ingredient used in the formulation of aloe vera soap:

Sr.no	Ingredients	Quantity (gm)
1	Distilled water	35.5 gm
2	NaoH	27.5 gm
3	Fresh aloe gel	28.5 gm
4	Canola oil	85gm
5	Coconut oil	42.5 gm
6	Castor oil	14gm
7	Tallow	28.5 gm
8	Sunflower oil	28.5 gm
9	Iye	6 gm

Table no.1

Extraction of Aloe Vera gel

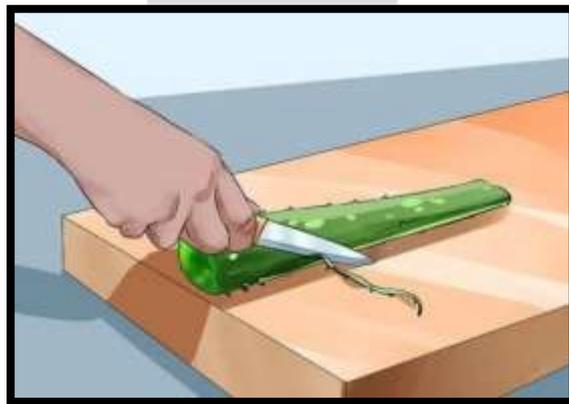
Cut off some Aloe Vera leaves



Clean off the cut Aloe Vera



Cut off the top third of the leaves



Remove the spines



Remove the top and bottom layers



Remove and store the gel

You will also need

- Safety goggles
- Latex or rubber gloves
- Long-sleeved shirt and pants (to cover the body parts)
- Heat resistant container (use stainless steel, tempered glass or polypropylene plastic containers. Do not use aluminum containers as they react with lye.)
- An emulsifying stick blender
- Rubber spatula
- Scale (for measuring the quantities)
- Soap mold (use plastic ones such as Tupperware or silicone molds)

The amounts of lye and distilled water will change depending on the ingredients and their amounts.

Apart from the basic ingredients, you also need to add fragrance and skin conditioners to your soap.

You can use

- Oats (for acne-prone or inflamed skin)
- Sea salt (for softening your skin)
- Lavender essential oil (for a soothing scent)
- Lemongrass essential oil (for a zesty scent)
- Pumice or natural scrub pieces (for additional scrubbing)

Preparation

- Measure the distilled water into a bowl.
- Don't forget to zero out the weight of the container.
- Keep it aside.
- Heat the vegetable fat and canola oil or olive oil in a microwave for a minute.
- You can even melt them on a gas burner on high heat.

- Measure the lye (zero out the weight of the bowl) and use a spoon to scoop the lye and pour it into the water for minute.
- Remember, never pour water into lye but always do the converse.
- Wait for the fumes to die down.
- You will be left with a cloudy-clear liquid.
- DO NOT touch it with bare hands.
- Add the oil and vegetable fat mix to the lye and water mixture and stir using a spatula.
- Add the aloe vera gel to this and stir.
- It will take some time for the mixture to absorb the gel and the oil.
- Be patient and keep stirring.
- Add the essential oils (and other elements) and stir.
- Pour this batter into the soap mold and keep it aside (away from light, heat, and moisture).
- Let it set for 24 hours.
- Cover the mold with a towel.
- Once it is hard, remove it from the mold.
- The soap needs at least 4 weeks for curing (time required for lye, fat, and water to turn into soap).
- During this period, store it in a cool and dry place.
- The Aloe Vera soap bar is ready to use after the curing time is over.

Fig.no. 10



Evaluation

Physico-chemical parameters of formulation

Sr.no	Chemical parameters	Standard values
1	pH	6.5- 7.5
2	%free alkaline	0.25
3	Foam height (cm)	2.5- 3.0
4	Foam retention (min)	0.5- 2.5
5	Alcohol insoluble matter	18.0
6	High temperature stability	45°C

Irritancy test

Mark an area on left hand dorsal substance upto (1 Sq cm)

The cream was applied to the specified area and time was noted.

Irritancy way checked if any up to 24 hrs For regular intervals.

Uses

- It helps in reducing acne and dry skin.
- It reduces skin tanning.

- Dryness and itching.
- It also detoxifies the skin.
- Removes dirt from the skin.
- This soap has powerful antioxidants.
- Which keeps the skin hydrated.
- Not tested on animals.
- Palm oil free.
- Natural, vegan ingredients.
- Zero waste seed paper wraps.
- Made with essential oils (no synthetics) Handmade in small batches.
- Keeps skin clean, clear and germ-free.
- Helps in reducing pimples, acne, blemishes & pigmentation.
- Reduces dryness and keeps skin fresh with gentle fragrance

Conclusion

The gel of aloe vera, coconut oil and castor oil, sunflower oil and canola oil was studied. The prepared formulation when tested for different tests gave good results. It does not give any irritancy to skin; it was determined by using these soaps by a few volunteers; hence it is proved that soap does not give any irritancy to skin. Furthermore, the prepared soaps were standardized by evaluating various physico-chemical properties such as pH, appearance, odour, in which the exhibit satisfactory effect.

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