

# FORMULATION AND EVALUATION OF HERBAL SALVE

**Researched by:** *Shital R. Sonwane*

**Guidance by:** *Mr. S.B.Deshmukh*

**Principal:** *Dr. Santosh Jain.*

**College:** *Aditya Institute of Pharmaceutical, Beed.*

**Dr.Babashaheb Ambedkar Technological University, Lonere**

## I. ABSTRACT

Herbal medicine was prepared from various parts of plants like flowers, leaves, seeds, roots etc. For medicinal use, the herbal salve is applied externally on the human body. This study aimed at formulating and preparing a herbal salve from *Lavandula angustifolia*, *Matricaria chamomilla* L. and *Aloe barbadensis* establishing the quality, healing efficacy of the prepared herbal ointment. The present work is to formulate and evaluate the herbal salve for its antibacterial, anti-inflammatory, antifungal, carminative (smooth muscle relaxing), sedative, antidepressive and effective for burns and insect bites. The formulations were evaluated for their physicochemical parameters like colour, odour, spreadability, consistency, washability. Also, the formulation was evaluated for its stability at various temperature conditions which shows no change in the irritancy, spreadability.

### KEY WORDS :

Herbal salve, lavender essential oil, Olive oil, *Matricaria chamomilla* L. , *Aloe barbadensis*.

## 1] INTRODUCTION

Ointment is a substance used on the skin to soothe or heal wounds, burns, rashes, scrapes, or other skin problems. Also called unguent.

A salve is a subset of ointment category. Salves are typically softer than balms yet harder than traditional ointments. They absorb deeply into the skin and are frequently infused with herbs or essential oils to treat wounds and sores. A salve is simply an oil infused with herbs and combined with a wax (beeswax) to thicken them into a solid state at room temperature.

Topical salve is used to soothe dry skin while reducing the irritation and itching associated with eczema and other skin conditions. This salve can be used on both adults and children as a moisturizer and topical protectant. Great for Rashes, burns, to soothe skin and barriers of the skin that have been broken due to severe dryness.

Lavender flowers represent purity, silence, devotion, serenity, grace, and calmness. Purple is the colour of and speaks of elegance, refinement, and luxury, too.

*Lavandula* (common name **lavender**) is a genus of 47 known species of flowering plants in the mint family lamiaceae. It is native to the old world and is found in Cape Verde and the canary islands, and from Europe across to northern and eastern Africa, the Mediterranean, southwest Asia to India.

Chamomile (*Matricaria chamomilla* L.) is one of the important medicinal herb native to southern and eastern Europe. It is also grown in Germany, Hungary, France, Russia, Yugoslavia, and Brazil. It was introduced to India during the Mughal period, now it is grown in Punjab, Uttar Pradesh, Maharashtra, and Jammu and Kashmir. The plants can be found in North Africa, Asia, North and South America, Australia, and New Zealand. Hungary is the main producer of the plant biomass this In Hungary, it also grows abundantly in poor soils and it is a source of income to poor inhabitants of these areas. Flowers are exported to Germany in bulk for distillation of the oil.

There are two main types of Chamomile:

1. German chamomile (*Matricaria recutita*)
2. Roman chamomile (*Anthemis nobilis*)

German chamomile contains higher levels of chamazulene and bisabolol [than Roman chamomile], so it's generally considered the more efficacious form of chamomile and is more widely used in skin care products

Chamomile may provide benefits for:

- ❖ Inflammation
- ❖ redness
- ❖ Eczema
- ❖ Hyperpigmentation
- ❖ Acne
- ❖ Free radical damage
- ❖ Wound healing

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

Aloe vera contains 75 potentially active constituents: vitamins, enzymes, minerals, sugars, lignin, saponins, salicylic acids and amino acids.

## 2] HISTORY

Herbal salves / Ointments composition comprising extracts of organically certified herbs, organic essential Oils and organic bees wax which are mixed to form a medicated topical application.

Lavender has been used for more than 2,500 years for fragrances, therapeutics, and cooking and as an ornamental shrub. Egyptians used lavender oil in embalming, and the Greeks benefited from its

medicinal properties for easing headaches, gastritis, and sore throats. It was also used extensively by the Romans, who brought it with them throughout the Empire.

The word “lavender” comes from the Latin *lavare* (“to wash”) the Romans used the fragrant oil in their baths. From the Middle Ages and Renaissance right up to modern times, lavender has been used in perfumes, toilet waters, potpourris, and sachets. As an aromatherapy oil, it relieves stress and induces sleep. The oil’s antiseptic properties are also known to heal wounds and burns and to ward off disease. Taken internally, lavender preparations have been used to ease digestive complaints and headaches.

Chamomile has long been a key ingredient in soothing skin care regimens. Even the ancient Greeks and Egyptians applied crushed chamomile flowers to their skin to treat weather-related redness and dryness. Hundreds of years later, scientific research has found that the compounds in chamomile likely do make it a powerful skin multitasker.

“Chamomile’s wonderful soothing, healing, anti-oxidant, and anti-inflammatory properties make it a popular ingredient in skin care,” says Dendy Engelman, MD, FACMS, FAAD, a board certified cosmetic dermatologist and Mohs surgeon at Shafer Clinic in New York City.

Both German chamomile, *Matricaria chamomilla*, and Roman chamomile, *Chamaemelum nobile*, are varieties of chamomile cultivated and used for herbal tea and other herbal applications. German

chamomile thrives in Europe and temperate parts of Asia and is extensively cultivated in Eastern Europe. German chamomile is also known as wild chamomile; it is so wild that it grows like a roadside weed in some areas. Roman chamomile, on the other hand, thrives in Central Europe and North America.

Perhaps as a nod to its ancient origins, much of the commercially available chamomile originates in Egypt. But both chamomile varieties are known to be cultivated in other temperate climates around the world, including India, South America, South Africa and Australia. Depending on where you live, starter plants can usually be found at garden stores for back yard or container herb gardening.

Ancient Egyptians dedicated chamomile to their Gods because they believed it to help cure “the fever”. The Spanish used chamomile as a flavoring agent in sherry making. The Romans sipped chamomile as a healing beverage and used it as incense. English brewers used chamomile flowers throughout the Middle Ages as a bittering agent in beer making. In fact, the bitter hops flowers we associate with beer making today eventually replaced chamomile as a key beer flavoring ingredient.

The botanical name of Aloe vera is *Aloe barbadensis miller*. It belongs to *Asphodelaceae* (*Liliaceae*) family, and is a shrubby or arborescent, perennial, xerophytic, succulent, pea- green color plant. It grows mainly in the dry regions of Africa, Asia, Europe and America. In India, it is found in Rajasthan, Andhra Pradesh, Gujarat, Maharashtra and Tamil Nadu.

Aloe vera has been used for medicinal purposes in several cultures for millennia: Greece, Egypt, India, Mexico, Japan and China. Egyptian queens Nefertiti and Cleopatra used it as part of their regular beauty regimes. Alexander the Great, and Christopher Columbus used it to treat soldiers' wounds. By the early 1800s, Aloe vera was in use as a laxative in the United States, but in the mid-1930s, a turning point occurred when it was successfully used to treat chronic and severe radiation dermatitis.

### 3] HERBAL COMPONENTS OF SALVE

Herbal ingredients of salve which we have prepared:

1. lavender essential oil,
2. Olive oil,
3. chamomile flowers,
4. aloe vera,
5. beeswax.



**Fig 1: Lavender flowers**

It is native to the Old World and is found in Cape Verde and the Canary Islands, and from Europe across to northern and eastern Africa, the Mediterranean, southwest Asia to India.

#### Scientific Classification.

**Kingdom** : Plantae

**Order** : Lamiales

**Family** : Lamiaceae

**Subfamily** : Nepetoideae

**Tribe** : Ocimeae

**Genus** : Lavandula L.

**Type species** : Lavandula spica L.

#### SYNONYMS

- ❖ Stoechas Mill.
- ❖ Fabricia Adans.
- ❖ Styphonia Medik.
- ❖ Chaetostachys Benth.
- ❖ Sabaudia Buscal. & Muschl.
- ❖ Plectranthus mona lavender
- ❖ Isinia Rech.f

#### 3.1] LAVENDER

Lavandula (common name lavender) is a genus of 47 known species of flowering plants in the mint family, Lamiaceae.

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The main constituents of lavender are linalool, linalyl acetate, 1,8-cineole,  $\beta$ -ocimene, terpinen-4-ol, and camphor.

Commercially, the plant is grown mainly for the production of lavender essential oil. English lavender (*lavandula angustifolia*) yields an oil with sweet overtones and can be used in balms, salves, perfumes, cosmetics, and topical applications. *Lavandula*  $\times$  *intermedia*, also known as **lavandin** or **Dutch lavender**, hybrids of *L. angustifolia* and *L. latifolia* are widely cultivated for commercial use since their flowers tend to be bigger than those of English lavender and the plants tend to be easier to harvest. They yield a similar essential oil, but with higher levels of terpenes including camphor, which add a sharper overtone to the fragrance, regarded by some as of lower quality than that of English lavender.

The US Food and Drug Administration considers lavender as generally recognized as safe (GRAS) for human consumption. The essential oil was used in hospitals during World War 1.

Lavender essential oil is one of the most popular and versatile essential oils used in aromatherapy. Distilled from the plant *Lavandula angustifolia*, the oil promotes relaxation and believed to treat anxiety, fungal infections, allergies, depression, distress, insomnia, eczema, nausea. Lavender oil is an essential oil obtained by distillation from the flower spikes of certain species of lavender.

**USES:** Lavender oil has many uses for treating the skin. It naturally reduces inflammation, lessens pain, and cleans the surface of the skin. Lavender is helpful for soothing minor skin irritations and mild

burns. The scent is well known For its relaxing properties.

### 3.2] OLIVE OIL

Olive oil is a liquid fat obtained by pressing whole olives, the fruit of *Olea europaea*, a traditional tree crop of the Mediterranean Basin, and extracting the oil. Spain is the world's largest producer, manufacturing almost half of the world's olive oil.



**Fig 2 : Olive oil**

The composition of olive oil varies with the cultivars, altitude, time of harvest, and extraction process. It consists mainly of oleic acid (up to 83%), with smaller amounts of other fatty acids including linoleic acid (up to 21%) and palmitic acid (up to 20%). Extra virgin olive oil is required to have no more than 0.8% free acidity and is considered to have favourable flavour characteristics.

**USES:** Moisturizes the skin, Reduces the signs of aging, Helps cleanse the skin, Promotes wound healing.

### 3.3] CHAMOMILE

Chamomile (*Matricaria chamomilla* L.) is a well-known medicinal plant species from the Asteraceae family often referred to as the “star among medicinal species.”



**Fig 3: Chamomile flowers**

**Kingdom** : Plantae

**Order** : Asterales

**Family** : Asteraceae

**Genus** : *Matricaria*

**Species** : *M. chamomilla*

**Biological name** : *Matricaria chamomilla* L.

**SYNONYMS:**

- ❖ *Chamomilla chamomilla* (L.) Rydb.
- ❖ *Chamomilla recutita* (L.) Rauschert
- ❖ *Matricaria recutita* L.
- ❖ *Matricaria suaveolens* L.

**Chamomile**, also spelled **camomile**, any of various daisylike plants of the aster family (Asteraceae). Chamomile tea, used as a tonic and an antiseptic and in many herbal remedies, is made from English, or Roman, chamomile (*Chamaemelum nobile*) or German chamomile

(*Matricaria chamomilla*). Several species are cultivated as garden ornamentals, especially golden Marguerite or yellow chamomile (*Cota tinctoria*)

Some commonly used species include:

- ❖ *Matricaria chamomilla* – often called "German chamomile" or "Water of Youth"
- ❖ *Chamaemelum nobile* – Roman, English, or garden chamomile; also frequently used (*C. nobile* Treneague is normally used to create a chamomile lawn)

Constituents of chamomile flowers are polyphenol compounds, including apigenin, quercetin, patuletin, and luteolin. Chamomile is under preliminary research for its potential anti-anxiety properties. There is no high-quality clinical evidence that it is useful for treating insomnia or any disease.

Chamomile is an herb that has been used for thousands of years to promote sleep, relieve stress, and alleviate stomach ailments, acting as a natural medicine to ease heartburn and nausea.

**Benefits of Chamomile for Skin**

- ❖ to calm and soothe the skin
- ❖ reducing redness, blemishes, and signs of aging
- ❖ **Relieves inflammation**

### 3.4] ALOE VERA

*Aloe vera* is a succulent plant species of the genus *Aloe*. It is widely distributed, and is considered an invasive species in many world regions.



**Fig 4: Aloe vera**

#### Scientific classification

**Kingdom** : Plantae

**Order** : Asparagales

**Family** : Asphodelaceae

**Subfamily** : Asphodeloideae

**Genus** : *Aloe*

**Species** : *A. vera*

**Binomial name** : *Aloe vera*(L.) Burm.f.

#### SYNONYMS:

- ❖ *Aloe barbadensis* Mill.
- ❖ *Aloe barbadensis* var. *chinensis* Haw.
- ❖ *Aloe chinensis* (Haw.) Baker
- ❖ *Aloe elongata* Murray
- ❖ *Aloe flava* Pers.
- ❖ *Aloe indica* Royle
- ❖ *Aloe lanzae* Tod.
- ❖ *Aloe maculata* Forssk. (illegitimate)
- ❖ *Aloe perfoliata* var. *vera* L.
- ❖ *Aloe rubescens* DC.
- ❖ *Aloe variegata* Forssk. (illegitimate)
- ❖ *Aloe vulgaris* Lam.

*Aloe vera* contains 6 antiseptic agents: Lupeol, salicylic acid, urea nitrogen, cinnamonic acid,

phenols and sulfur. They all have inhibitory action on fungi, bacteria and viruses.

The leaves of *Aloe vera* contain significant amounts of the polysaccharide gel acemannan which can be used for a wide range of medical purposes. The skin contains aloin which is toxic. Products made from *Aloe vera* usually only use the gel.

**USES:** Helps soothe sunburn. Helps to moisturize the skin. Boosts healing of wounds. Fights skin-ageing. Reduces infection and acne. Lightens blemishes on the face.

### 3.5] BEESWAX

Beeswax is a naturally occurring wax produced in the bee's hives by honeybees *A. mellifera*. Glands under the abdomen of the bees secrete this wax and it is used to build the honey comb. There are eight glands in the bee abdominal segment of female worker bees that produce the wax. The wax is recovered as a by-product when honey is harvested and refined.

Beeswax as an emulsifying agent of cosmetics provides elasticity, plasticity and increases skin adhesiveness. Due to its properties, it is a valuable ingredient in the manufacture of lipsticks, sticks, and creams.



**Fig 5: Beeswax**

Beeswax is a food grade wax with a white colour when it is freshly prepared. Later the colour changes into yellow because of the presence of propolis and pollen colorants.

**USES:** In preparation of ointments, plasters and polishes. Also used in the manufacturing of candles, moulds in dental and electronic industries, cosmetics, lip sticks. Is an ingredient of paraffin ointment.

#### 4] METHOD OF PREPARATION OF HERBAL SALVE

1. Finely chop or powder your dried chamomile flowers and add to the double boiler. Add the lavender essential oil and aloe vera and stir gently to distribute the herb throughout the oil. And let cool to room temperature.
2. When the mixture has cooled. Filter it.
3. Again add Olive oil and the filtered mixture of lavender essential oil and chamomile. Heat it and add beeswax and stir continuously until the wax is melted.
4. Immediately pour into tins. Let harden cap and label.

Sr. No.	Ingredients	Quantity
1.	Lavender essential oil	5 ml
2.	Chamomile flowers	1 gm
3.	Olive oil	15 ml
4.	Aloe vera	0.3 gm
5.	Bees wax	15 gm



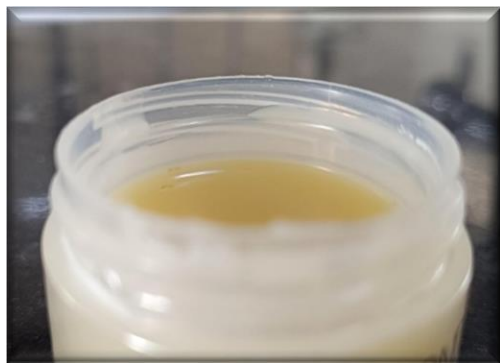
#### Materials used in formulation of Herbal salve



## 5] EVALUATION OF PREPARED HERBAL FORMULATION

### PHYSICAL PARAMATERS:

Clarity and colour were checked by naked eyes against white background, the odour was Smelled.



### PHASE SEPARATION:

The prepared salve was transferred in a suitable wide mouth container. Set aside for storage, The oil phase and aqueous phase separation were visualising after 24h.

### NON-IRRITANCY TEST:

Prepared herbal ointment was applied to the skin of human being and observed for the effect.

### STABILITY STUDIES:

Stability testing of prepared herbal salve formulation was at room temperature studied.

### WASHABILITY:

Formulation was applied on the skin and then ease Extend of washing with water was checked.

### SPREADABILITY:

The spreadability was determined by placing excess of Sample in between two slides which was

compressed to Uniform thickness by placing a definite weight for Definite time. The time required to separate the two Slides was measured as spreadability. Lesser the time Taken for separation of two slides results better Spreadability.



Spreadability was calculated by following

Formula:  $S = M \times L / T$

Where

S= Spreadability

M= Weight tide to the upper slide

L= Length of glass slide

T= Time taken to separate the slides

## 6] RESULTS AND DISCUSSION

Sr.No.	Physicochemical parameters	Observations
1.	Colour	Light yellow
2.	Odour	Characteristic
3.	Spreadability	41.66 sec
4.	Washability	Good
5.	Non irritancy	Non irritant
6.	Stability study	Stable at 25°C and 35°C.
7.	Phase separation	No phase separation
8.	Appearance	Good

The physicochemical parameters of the prepared salve were determined parameters such as colour, odour, appearance was tested.

## 7] CONCLUSION

Formulation of Herbal salve was successfully developed that Met the relevant pharmaceutical characteristics.

The prepared formulation showing good physical characteristics.

Evaluated by various evaluation parameters such as Spreadability, washability, phase separation, non irritancy test and gives good result.

Herbal salve significantly accelerated wound healing, mild burns, skin rashes, inflammation, soothe minor skin irritations.

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