



# A review on prosopis cineraria in cosmetic science

**Authors Name : 1) Gouri K. Kohad 2) Aniket A. Magar 3) Rajnandini P. Rathod  
4) Prof.Radhika Kotame**

Collage Name: Matoshri Institute Of Pharmacy, Dhanore, Yeola, Nashik

## ABSTRACT

The cosmetics industry, explored through the lens of the Drugs and Cosmetics Act of 1940 in India, reveals a rich history and evolving trends. Originally associated with women, cosmetics are now embraced by men, marking a societal shift in grooming norms. The act, aimed at ensuring safety and quality, classifies products and imposes restrictions on import, manufacture, and sale. Prohibitions and penalties deter substandard or harmful products. Manufacturing processes are documented through Batch Formula Records and Master Formula Records, contributing to quality assurance. The industry adheres to Current Good Manufacturing Practices (cGMP) and International Conference on Harmonization (ICH) guidelines for global uniformity. Understanding skin, oral, hair, nail, and body cavity-related issues is integral for formulating effective cosmetics. Personal hygiene, including skincare, haircare, nail care, and eye care, underscores the industry's commitment to promoting a healthy lifestyle. The cosmetics sector continues to play a vital role in enhancing personal appearance and confidence.

**KEYWORDS:** Drug, cosmetic, skin, act, cream, product, hair, section, manufacture

## INTRODUCTION TO COSMETICS INDUSTRY

The study of cosmetic is called as “cosmetology”. A person who is licensed in cosmetology is called as “cosmetologist”. Product cover under cosmetic range from hair care, oral care, skin care, lipstick. Classification of cosmetics base on the site of application and present the product category.

Cosmetics help a woman to feel better about her appearance. Women have adored themselves with makeup and color for centuries. They do this are to make them more confident, more attractive and to be more feminine. It’s to express their creativity, their beauty, to hide what they don’t like about themselves and accentuate what they do like about themselves.

Days has gone when cosmetic is only associated with women only. Now it’s official, that men are now wearing make-up. More and more men today are not shy about being fashionable and using make-up without any hesitation. If you do not agree with this fact, next time when you visit any mall, take a look at the cosmetic section. You will find a separate section, separate selves which are now dedicated to men only. How and when this happened, it’s still mysterious. Today's sophisticated men are concerned about their personality, how they look. It is appearance that people first see and remains a major factor in how they gauge a person. Men's cosmetics are there to help him look his best.

**Cosmetics are substances used to enhance the appearance or odor of the human body.**

The word cosmetics derive from the Greek word which means technique of dress & ornament. Ancient Greek women painted their cheeks with herbal pastes made from crushed berries and seeds. They used to color their cheeks in red color by first coating their face, neck and other body part with a white powder without knowing that white powder contained lead that destroy their complexion after a certain period of time. Egyptians were the first to use cosmetics in the 4th millennium BC. Cosmetics were in wide use in the Roman Empire. Although typically restricted to use within the upper classes. Women during the middle Ages didn't wear much make - up, until Queen Elizabeth I became one of Britain's most celebrated users of natural beauty preparations.

The use of body paint for ornamental and religious purposes has been common among primitive peoples from prehistoric times. Ointments, balms, powders, and hair dyes have also been used from ancient times. Many cosmetics originated in Asia, but their ingredients and use are first recorded in Egypt. Lipsticks first appeared in the ancient city of Ur, near Babylon, 5000 years ago. [3]

## Overview of Drug and Cosmetics Act 1940 and 1945

The **Drugs and Cosmetics Act, 1940** is an [act of the Parliament of India](#) which regulates the import, manufacture and distribution of drugs in [India](#). The primary objective of the act is to ensure that the drugs and cosmetics sold in India are safe, effective and conform to state quality standards. contains provisions for classification of drugs under given schedules and there are guidelines for the storage, sale, display and prescription of each schedule.

This act was originally known as the Drug Act and was passed in 1940. The original act was prepared in accordance to the recommendations of the Chopra Committee formed in 1930. The related Drugs Rules was passed in 1945. Since 1940, the act has undergone several amendments and is now known as the Drugs and Cosmetics Act, 1940.

The term "drug" as defined in the act, includes various substances, diagnostic, and medical devices. The act defines "cosmetic" as any product that is meant to be applied to the human body for the purpose of beautifying or cleansing. The definition however excludes soaps. In 1964, the act was amended to include [Ayurveda](#) and [Unani](#) drugs.

The Section 16 of the act defines the standards of quality for drugs. The Section 17 defines "misbranding". A drug is considered misbranded if it claims to be of more therapeutic value than it actually is. The manufacturer of such a drug may be asked to suspend the manufacture of the drug under Section 18. Section 27 deals with fake and adulterated drugs. The act requires more of that ingredients of the drugs should be printed on the label.

The Section 22 defines the powers of the drug inspectors and Section 23 defines the strict procedure which should be followed by the inspectors during any raids.

The **Drugs and Cosmetics Rules, 1945** are the rules which the government of India established through the [Drugs and Cosmetics Act, 1940](#). These rules classify drugs under given schedules and present guidelines for the storage, sale, display and prescription of each schedule.[4]

**Prohibition on the Import of Certain Drugs or Cosmetics** The Drugs and Cosmetics Act restricts the import of:

- Drugs or cosmetics of substandard quality.
- Any misbranded or spurious cosmetic.
- Any adulterated or spurious drug.
- Any patent or proprietary medicine with no description of the formula or list of active ingredients included in it, along with the quantities thereof.
- Any drug which purports or claims to cure or mitigate any such disease or ailment in the form of a statement, design, or device accompanying it.
- Any cosmetic includes an ingredient that may render it unsafe or harmful for consumption.
- Drugs or cosmetics are prohibited from import under these provisions.

**Prohibition of manufacture and sale of certain drugs and cosmetics**

- Any drug which is not of a standard quality, or is misbranded, adulterated or spurious
- Any cosmetic which is not of a standard quality or is misbranded or spurious
- Any patent or proprietary medicine, unless there is displayed in the prescribed manner on the label or container thereof the true formula or list of active ingredients contained in it together with the quantities
- Any drug which by means of any statement design or device accompanying it or by any other means, purports or claims
- Any cosmetic containing any ingredient, which may render it unsafe or harmful for use under the directions, indicated or recommended
- Any drug or cosmetic in contravention of any of the provisions

**Penalties Related To Import:**

- An offence of any adulterated (section 9-A) or spurious drug (section 9-B) or cosmetic (section 9-0) being imported into the country in violation of provisions of the Act is punishable with imprisonment up to three years and a fine up to five thousand rupees
- If any drug or cosmetic other than one referred to under (a) if illegally imported can attract punishment of six months imprisonment or fine of Rs. 500.00 or both.
- Any drug or cosmetic imported in contravention with provisions of any notification issued under Section 10-A shall be punishable with imprisonment upto 3 years or fine upto Rs. 5000.00.

**Cosmetics Prohibited To Import:**

- Misbranded cosmetic
- Spurious cosmetics
- Cosmetic containing harmful ingredients
- Cosmetics not of standard quality which contains more than-2 ppm Arsenic, 20 ppm lead, 100 ppm heavy metal. [5]

**Fig. Manufacture****Manufacture:**

- Prohibition of manufacture
- Manufacture of other than in Sch-C/C1
- Manufacture of those in Sch-C/C1
- Manufacture of Sch-X drugs
- Loan license
- Repackaging license
- Offences & Penalties

**Prohibition of manufacture:**

- | Drug not of standard quality or misbranded, adulterated or spurious
- | Patent or Proprietary medicine
- | Drugs in sch-J
- | Risky to human beings or animals
- | Drugs without therapeutic value
- | Preparation containing cyclamates

**Sales of Drugs**

- | Classes of drugs prohibited to be sold
- | Wholesale of biological (C/C1)
- | Wholesale of other than those specified in C/C1 and X

**Class of Drug Prohibited To Sale**

- Misbranded, spurious, adulterated and drugs not of standard quality
- Patent/Proprietary drugs with undisclosed formula
- Sch-J drugs

- Expired drugs.
- Drugs used for consumption by government schemes such as, Armed force.

### **Documentation**

Batch Formula Record Synonym: Batch Production Record.

- 1] This is an approved copy of the MFR for each batch of product being processed, in which data has been filled in during processing of the batch.
- 2] The BMR bears details of the unique batch number (Lot No.) assigned to that particular batch permits the identification of all procedures performed on the lot and their results as well as details of manufacture and control history of any particular product.
- 3] The information must be recorded in along book along with date on which batch number is allotted, the identity of the product and the batch size. Batch production records should be prepared, maintained and controlled for each batch of product.
- 4] These batch records are then sent to each of the departments involved in the production, packaging, and control of the product and retained for a period of approximately five years after distribution has been completed. [6]

### **5] Master Formula Record (MFR)**

A Master formula Record is defined as an approved master document, with instructions of how the entire manufacturing process must be performed for each batch size of each product to be manufactured. The MFR must be prepared, signed and dated by one competent individual and independently checked, signed and dated by another competent person in the quality department. All processing of a given batch must proceed as per its MFR. [7]

### **Quality Audit Report**

One of the most important objectives of an internal quality audit is measuring the effectiveness of an organization's quality management system. For this to happen, executive management must first meet its overriding responsibility of establishing and maintaining a system regarding quality policy, goals, resources, processes and effective performance-including monitoring and measuring the system's effectiveness and efficiency.

ISO 9001:2000 delineates this responsibility into three distinct areas: 4.1 General requirements, Documentation requirements and 4.3 Quality management principles. If an organization's executive management isn't active in these three areas, then they won't be addressed and the quality system will be ineffective. Let's look at them one at a time, first in terms of their meaning and then as auditable characteristics. [8]

### **Distribution Report**

A labour cost distribution report is an accounting statement that details hours worked, wages earned, and benefits accrued by a company's employees. Some labour cost distribution reports also include information about what organizational funds were used to pay for that labour. [9]

### **Handling of Return Goods 1. Objective**

To lay down the procedure for handling of returned goods from distributor / customer end

#### **2. Scope:**

This procedure is applicable for identifying, holding and/or disposition of Drugs Product & Drug Substances returned from distributors and / or customers. [10]

### **• Drug Recalls**

#### **Recalling and Waste Disposal:**

Drug recall refers to the action of removing or withdrawing a batch of product from distribution or use, to be returned to the manufacturer. This action is generally done in cases where deficiencies are discovered in the safety, quality or efficacy of drugs. It is important to note that product recall does not include the normal removal of products that have passed their expiry period. Recall as, "An action taken to resolve a problem with therapeutic goods for which there are established deficiencies in quality, efficacy or safety." According to the CDSCO (Central Drugs Standard Control Organization), quality defects may include drugs that are not of standard quality, spurious or adulterated drugs. Safety and efficacy defects include serious adverse drug reactions and death. Drugs manufactured despite being prohibited under the provisions of the Drugs and Cosmetics Act, and products manufactured under cancelled or suspended license may also be recalled from the market. [11]

## Review Of The List Ingredients Of The Labels Of Cosmetics, Cosmeceuticals, Baby Care Men's Range Of The Market And Conduct Comparative Study Of The Formulations

### • Labelling cosmetics with their ingredients

Dermatologists often see patients with contact dermatitis caused or worsened by cosmetic products. Adequate diagnosis, treatment, and advice are possible only if the offending ingredients can be identified. European Community regulations do not require cosmetics manufacturers to list all ingredients on their products; only about 30 groups of chemicals must be declared on the label. As an almost invariable consequence little information is provided on the product or package label. Doctors, therefore, often have to contact the manufacturers of the cosmetics used by their patients, which usually takes time and sometimes results in undesirable delays in diagnosis or no diagnosis at all. After the allergens responsible for the dermatitis have been identified patients need advice on which products to avoid and on those that can be used without risking a recurrence of dermatitis. Currently, this is virtually impossible. The solution to this problem is simple: all ingredients of cosmetics and toiletries must be listed on the products or the package labels, or both.' [14]

**Current Good Manufacturing Practices Of Cosmetics As Per The Regulatory Authorities** cGMP is the aspect of QA that ensures the consistent production and control of products to meet pre-determined quality standards. The primary aim of cGMP is to reduce two inherent risks involved in pharmaceutical production - mix-ups and cross-contamination. Mix-up refers to the confusion caused by interchange of materials, whereas cross-contamination is unexpected contamination of one batch of product by another product. cGMP guidelines are prescribed by every country's drug regulatory authority and according to WHO, cGMP requires that:

1. All manufacturing processes are clearly defined, systematically reviewed in the light of experience, and shown to be capable of consistently manufacturing pharmaceutical products of the required quality that comply with their specifications:
2. Qualification and validation are performed. [15]

### Study Of ICH Guidelines For Stability Studies ICH And Its Purpose:

The full form of ICH is "International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use." This body was set up to bring together representatives of pharmaceutical industry and regulatory bodies to discuss technical and scientific aspects of registration of drugs. As the pharmaceutical industry grew more international, the differences in technical requirements across countries meant that drug makers had to spend lot of time and money to duplicate test procedures if they wanted to market their products at an international level. It started becoming important to make safe International Conference on Harmonization and effective drugs available to patients all over the world without the delays caused by regulations not matching across regulatory bodies of the different countries. Thus, a need was felt to rationalize and harmonize drug regulations, and this resulted in the inception of ICH in 1990. [17]

### Knowledge About Skin, Oral Cavity, Hair, Nail, And Body Cavities Related Problems • SKIN

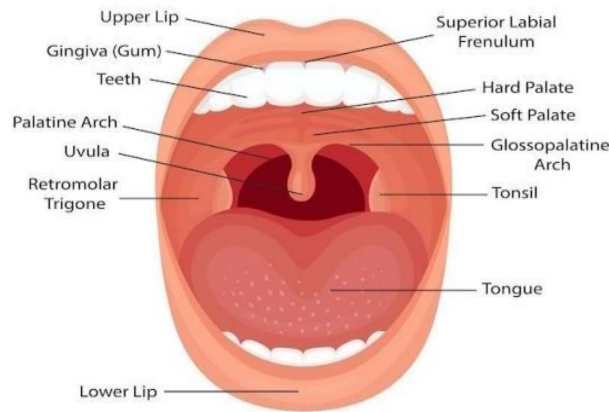
#### Basic Structure Of Skin

The skin is the largest organ of the body, making up 16% of bodyweight, with a surface area of 1.8m<sup>2</sup>. There are three structural layers to the skin: the epidermis, the dermis and subcutaneous. Hair, nails, sebaceous, sweat and apocrine glands are regarded as derivatives of skin. The epidermis is the outer layer, serving as the physical and chemical barrier between the inner body and exterior environment; the dermis is the deeper layer providing the support of the skin, below which is a loose connective tissue layer, the subcutaneous hypodermis which is an important depot of fat. [18]

#### ORAL CAVITY

**Oral related disease:** Oral health conditions Most oral health conditions are largely preventable and can be treated in their early stages. The majority of cases are dental caries (tooth decay), periodontal diseases, oral cancers, Oro-dental trauma, cleft lip and palate, and Noma (severe gangrenous disease starting in the mouth mostly affecting children). [19]

## ANATOMY OF ORAL CAVITY



**Fig.no.3 Anatomy of Oral Cavity**

### **Cleansing and care needs for face, eye lids, gums, dental cavities, hairs, lips, hands, feet, nail, Scalp, neck, body and under-arm to maintain hygiene**

Personal hygiene is very essential to lead a healthy life. Most of the infections and diseases can be prevented by personal hygiene. It should be developed since early years of life. Personal hygiene is a healthy way of living. Personal hygiene makes a person comfort and confident.

#### **Skin care**

Skin is the largest organ in our body. It is essential to keep the skin clean and dry as it prevents entry of many pathogenic organisms in to our body. Take bath twice a day. Take well balanced diet containing vitamin A, B, C and protein Massage of the skin increases blood circulation.

#### **Hair care**

Neat and healthy hair makes a good impression on others. Wash hair daily. Keep the scalp clean Well balanced diet help in healthy hair growth

#### **Nail care**

It is common to accumulate dirt and microorganisms under the nail which causes variety of infections.

Cut short the nail. Use nail brushes to clean the nails. Wash hands before and after food and toileting

#### **Eye care**

It is essential to protect and care eyes for effective vision. Eye care starts soon after the birth of a baby. Clean the secretions from eyes.

Cleaning should be done from inner canthus to the outer canthus of the eye

### **Formulation consideration for ethnic needs of cosmeceuticals 1.**

#### **moisturizing cream:**

This medication is used as a moisturizer to treat or prevent dry, rough, scaly, itchy skin and minor skin irritations (such as diaper rash, skin burns from radiation therapy). Emollients are substances that soften and moisturize the skin and decrease itching and flaking

**Example**, Nivea moisturizing cream and Cetaphil

2. **Vanishing cream:** a cream or ointment that leaves no visible trace when rubbed into the skin. **Example**, Ponds vanishing cream and Johnson's

#### 3. **Cold cream:**

Cold cream is mainly used for skin treatment (such as a facial mask or lip balm), due to its moisturizing properties. It can also be used to remove makeup and as shaving cream.

**Example**, Mama earth Vitamin C Face Wash

**4. Cleansing cream:**

A form of cold cream used to remove grime and cosmetics from the skin.

**Example**, NIVEA Women Face Wash for Dry Skin and L'Oréal Paris Aura Perfect Milky Foam Facewash for Women |100 ml.

**5. Shaving cream:**

A frothy cosmetic cream applied to the skin before shaving with a razor. **Example**, Gillette shaving cream and VI -John

**6. Shampoo:**

A shampoo is a preparation of a surfactant in a suitable form-liquid, solid or powder-which when used under the specified conditions will Remove surface grease, Dirt, and skin debris from the hair shaft and scalp without adversely affecting the user.

**Example**, dove, clinic plus

**7. Dentifrices:**

Dentifrices: - are preparations meant to clean the teeth and other parts of oral cavity (gums) using a finger or a toothbrush **Example**, they are available as tooth powder, toothpastes, gels, dental creams and even as dental foams.

**8. Perfume:**

Perfume is a mixture of fragrant essential oils or aromatic compounds, fixatives and solvents used to give the human body, animal, food objects and living spaces a pleasant scent.

**Example**, Fogg, Spark,

**9. Prickly heat powder:**

This powder uses an anti-bacterial formula to keep one protected from skin problems. It has a soothing and cooling effect on the skin and gives relief from itching and burning sensation. It works by controlling bacterial growth and infection due to prickle

**Example**, candid and dermi- cool.

**10. Aerosol:**

A substance enclosed under pressure and released as a fine spray by means of a propellant gas. Aerosol **Example**, spray

**11. Lotion**

A liquid usually aqueous medicinal preparation containing one or more insoluble substances and applied externally for skin disorders. a liquid cosmetic preparation usually containing a cleansing, softening, or astringent agent and applied to the skin hand lotion aftershave lotion.

**Example**- ponds body lotion, Vaseline lotion

**12. Tablet**

A tablet (also known as a pill) is a pharmaceutical oral dosage form (oral solid dosage, or OSD) or solid unit dosage form. Tablets may be defined as the solid unit dosage form of medicament or medicaments with suitable excipients. It comprises a mixture of active substances and excipients, usually in powder form, pressed or compacted from a powder into a solid dose. **Example**, paracetamol and aspirin

**UNDERSTANDING BASIC CONCEPTS****1: PREPARATION OF SOPs OF DIFFERENT EQUIPMENTS, INSTRUMENTS AND MACHINERIES AS PER THE REGULATORY GUIDELINES:**

A Standard Operating Procedure (SOP) is a set of written instructions that document a routine or repetitive activity followed by an organization. The development and use of SOPs are an integral part of a successful quality system as it provides individuals with the information to perform a job properly, and facilitates consistency in the quality and integrity of a product or end-result. The term "SOP" may not always be appropriate and terms such as protocols, instructions, worksheets, and laboratory operating procedures may also be used. For this document "SOP" will be used.

**A. TEXTURE ANALYZER**

A Texture Analyzer is a texture measurement system that moves in either an up or down direction to compress or stretch a sample. The travelling arm is fitted with a load cell and records the force response of the sample to the deformation that is imposed on it.

**Purpose**

Texture Analyzers are used to measure many properties, such as Hardness, Brittleness, Spread ability, Adhesiveness, Tensile Strength, Extensibility, etc, on a vast range of products. [20]



**Fig..Texture Analyzer**

### **B. BROOKFIELD VISCOMETER**

The Brookfield viscometer is a rotational viscometer. To measure the viscosity, a measuring body (spindle) is immersed in the oil and rotated at a defined speed. The force required in order to keep this speed constant, is a measurement for the dynamic viscosity.

#### **PRINCIPAL**

The Brookfield Viscometer is the lab standard used around the world. Brookfield viscometers employ the principle of rotational viscometry - the torque required to turn an object, such as a spindle, in a fluid indicates the viscosity of the fluid.

#### **Purpose**

The Brookfield Dial Viscometer measures fluid viscosity at given shear rates. Viscosity is a measure of a fluid's resistance to flow. [22]



**Fig. Brookfield Viscometer C. TABLET PUNCHING MACHINE**

The basic principle behind the tablet compression machine is hydraulic pressure. This pressure is transmitted unreduced through the static fluid. Any externally applied pressure is transmitted via static fluid to all the directions in the same proportion. It also makes it possible to multiply the force as needed.



**PURPOSE**

The purpose of this SOP is to define the operating system.



**Fig. Tablet Punching Machine**

**D. CAPSULE FILLING MACHINE**

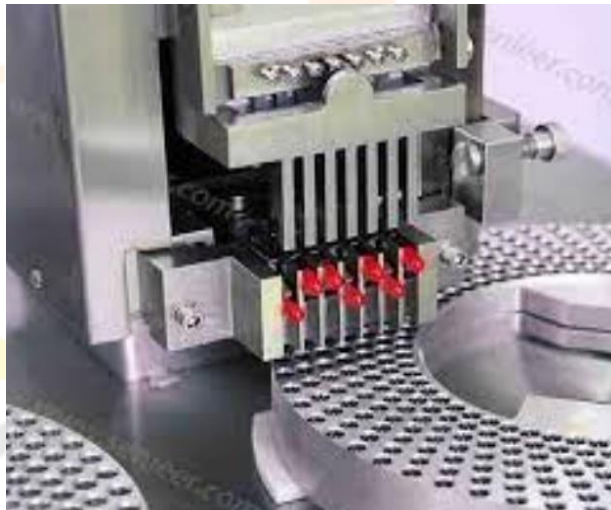
A Capsule filler is a type of machine used to fill empty capsules with pharmaceutical ingredients. Industrial capsule fillers are used in pharmaceutical manufacturing at large scale with high efficiency.

Working Principle of a Capsule Filling Machine

1. The positioning of colourless & translucent capsules in the capsule filling tray. Division of capsule caps from their bodies.
2. Filling up the capsule body with pharmaceutical ingredients
3. Rearrange the caps and bodies.
4. Expulsion of filled capsules from the machine.

**Purpose**

It is always used for filling the bulks of capsules. The capsule filling machine automatically ejects the capsule which is filled and locked in the machines. Automatic Capsule filling machine automatically fills the capsule by the dry forms of powders. [23]



**Fig. Capsule Filling Machine**

**E. SPRAY DRYER**

Spray drying is a one-step continuous unit operation that employs liquid atomization to produce droplets that are dried to individual particles when moved in a hot gaseous drying medium. A spray dryer consists of a feed pump, atomizer, air heater, air dispenser, drying chamber, and systems for exhaust air cleaning and powder recovery/separator. [24]



**Fig. Spray Dryer**

#### **F. FREEZE DRYER**

A freeze dryer removes water from a perishable material in order to preserve it, extending its shelf life and/or making it more convenient for transport. Freeze dryers work by freezing the material, then reducing the pressure and adding heat to allow the frozen water in the material to change directly to a vapor (sublimate). A freeze dryer works in three phases:

1. Freezing
2. Primary Drying (Sublimation)
3. Secondary Drying (Adsorption)

#### **Purpose: -**

It removes moisture from raw, frozen product through a vacuum system and process called sublimation. Frozen raw product is cut down to the desired piece size and spread evenly onto trays that are stacked and stored in freezer. [25]

#### **G. HOMOGENIZER**

A sample is divided into identical pieces using homogenization, which preserves the molecular composition of the other portions of the sample even when one part of it is removed. It is also frequently used to mix naturally immiscible materials fully. The purpose of homogenization is to reduce particle size, breach the cell wall and/or cell membrane, destruction of pathogens, and facilitate stable emulsions and dispersions. A classical illustration of this is the homogenization of milk, which distributes and shrinks the milk fat globules so that they are evenly dispersed throughout the remaining milk. [26]



**Fig. Homogenizer**

## H. ULTRASONICATOR

Principle of Ultra-Sonation low pressure is applied to the liquid, high-intensity ultrasonic waves are produced, creating small vacuum bubbles in the liquid. As the bubbles reach their saturation level, they collapse and this happens in the high-pressure cycle. This process is termed cavitation. [27]



Fig.Ultrasonicator

## I. COLONY COUNTER Purpose

To ensure the rapid and accurate counting of microbial colonies (cfu) [33]



Fig.Colony Counter

## KNOWING THE DIFFERENT TYPES OF EQUIPMENT AND MACHINERIES REQUIRED FOR MANUFACTURING AND QUALITY CONTROL OF DIFFERENT COSMETIC PRODUCTS

List of categories of cosmetics for the purpose of grant of licence to manufacture for sale of cosmetic in the country **Category**

- (A) Powders
- (B) Skin Powder for Infants
- (C) Creams, lotions, emulsions, pastes, cleansing milks, shampoos, pomade, brilliantine, shaving cream sand hairoils, etc.
- (D) Nail Polishes and Nail Lacquers.
- (E) Lipsticks and Lip gloss.
- (F) Depilatories

(G) Preparations used for Eyes 1. Eyebrows, Eyelashes, Eyeliners.

2. Kajal and Surma.

(H) Aerosol

(I) Alcoholic Fragrance solutions

(J) Hair Dyes

(K) Tooth-powders and toothpastes, etc. [28] 1. Tooth-powder in General.

2. Tooth pastes.

3. Tooth — Powder (Black).

(L) Toilet Soaps The following equipment, area and other requirements are recommended for the manufacture of

The following equipment, area and other requirements are recommended for the manufacture of **(A) Powders**

- Face-powder, cake make-up, compacts, face-packs, masks and rouges etc

. Equipment's:

(a) Powder mixer of suitable type provided with a dust collector.

(b) Perfume and colour blender.

(c) Sifter with sieves of suitable mesh size.

(d) Ball mill of suitable grinder.

(e) Trays and scoops (stainless steel).

(f) Filling and sealing equipment provided with dust extractor.

(g) For compacts: - (i) a separate mixer

(ii) Compact pressing machine.

(h) Weighing and measuring devices.

(i) Storage tanks. An area of 15 square metres is recommended. The section is to be provided with adequate exhaust fans.

**(B) Skin Powder for Infants. –**

**Equipment's:**

(a) Powder mixer of suitable type provided with a dust collector.

(b) Perfume and colour blender.

(c) Sifter with sieves of suitable mesh size.

(d) Ball mill of suitable grinder.

(e) Trays and scoops (stainless steel). Filling and sealing equipment provided with dust extractor.

(f) Weighing and measuring devices. An area of 15 square metres is recommended. The section is to be provided with adequate exhaust fans.

**(C) Creams, lotions, emulsions, pastes, cleansing milks, shampoos, pomade, brilliantine, shaving-creams and hair-oils, etc –**

**Equipment's:**

(a) Mixing and storage tanks of suitable materials.

(b) Heating kettle — steam, gas or electrically heated.

(c) Suitable agitator.

(d) Colloidal mill or homogeniser (wherever necessary).

**(D) Nail Polishes and Nail Lacquers – 1.**

**Equipment's:**

- (a) A suitable mixer.
- (b) Storage tanks.
- (c) Filling machine - hand operated or power driven.
- (d) Weighing and measuring devices. An area of 15 square metres is recommended. The section shall be provided with flame proof exhaust system.

2. Premises. - The following are the special requirements related to Nail Polishes and Nail Lacquers:

- (a) It shall be situated in an industrial area.
- (b) It shall be separate from other cosmetic-manufacturing area by metal/brick partition up to ceiling.
- (c) Floors, walls, ceilings and doors shall be fireproof.
- (d) Smoking, cooking and dwelling shall not be permitted and no naked flame shall be brought in the premises.
- (e) All electrical wiring and connections shall be concealed and main electric switch shall be outside the manufacturing area.
- (f) All equipment, furniture and light fittings in the section shall be flameproof.

**(E) Lipsticks and Lip gloss Equipment's:**

- (a) Vertical mixer.
- (b) Jacketed kettle steam, gas or electrically heated. (c) Mixing vessels (stainless steel).
- (d) Triple roller mill/Ball mill. [33]

**FORMULATION AND EVALUATION OF HAIR REMOVAL CREAM BY USING AN HERBAL BASE HAIR**

**REMOVAL CREAM :-** Hair removal cream known as Depilatory creams. The main ingredient in hair removal cream is thioglycolic acid . The hair is removed by causing instability the keratin structure with depilatory creams.. These are the proteins in the hair. The hair is first thinned and then dissolved into a jelly-like consistency, and it can be broken off and wiped away.[34]



**Fig.Methods of Hair Removal**

**ADVANTAGES:**

- The best thing about depilatory creams is that they offer painless hair removal, as compared to threading, plucking, waxing or shaving.
- The hair is dissolved and washed off with the cream, going down the drain without causing a mess.
- Depilatory creams are available in all cosmetic stores and are an affordable and painless hair removal option.
- The cream don't damage the skin or cause cuts, the way shaving can.
- Easy to use and commonly available
- Can be done at home
- Since the creams help remove hair below the surface of the skin, regrowth takes longer to become noticeable

**DISADVANTAGES:**

1. Chemicals contained in the creams can cause irritation and discomfort.
2. Depilatories are known to have strong odors from the chemicals used.
3. Risk of ingrown hairs.

4. Should not be used on sensitive skin areas.

### LITERATURE SURVEY :

The extensive literature survey was performed using database platforms like PubMed, JPRI , JMSCR , Google scholar to study regarding the formulation and evaluation of hair removal creamby using herbal base , study showed that formulation of herbal hair removal cream was done by utilizing turmeric, tulsi , neem etc. [42]

1.Prof. Farhan J Ahmad et al., (2017):

The study focuses on the brief review of hair removal products which covers the Introduction, Methods for removing hair, Required qualities and characteristics of hair styling products, Types of hair removal products with typical ingredients, Formulations, Effects of hair removal products on the skin and hairs, After depilation/ epilation preparations , Packaging of hair removal products, Evaluation of hair removal products , Marketed hair removal product.

2.Satish Kumar Sharma et al., (2020):

Nosocomial infection has been identified in previous research as a critical factor in the final result of hospital care, leading to severe morbidity and mortality. Healthcare professionals' hands are the main points of spreading infections to patients. Healthcare professionals' hands are on the patients.

3.Neelam Verma and coworkers (2011)

Prosopis cineraria was chosen because of its depilatory qualities as described in traditional writings. Their leaves as well as those of other medicinal plants were collected, and a formulation employing regular cream ingredients was made. The action was sped up using thioglycolic acid. The prepared cream was assessed based on the following criteria: evaluation of physical attributes, including measurements of particle size (diameter, area, and sphere volume), and viscosity.

4.Dr Anubha Singh et al.,(2016)

Although undesired hair is not harmful to health, it is thought to have an impact on a person's ability to look their best. Undesired facial and body hairs has a function in one's cosmetic appearance. Braver. Natural Hair Inhibitor if used as an adjuvant therapy after hair removal (Waxing, Hair Removal Cream) showed effective results in reducing unwanted hair growth. In both groups (with waxing, Hair removal cream) approx 84% of subjects experienced reductionin hair growth in 90 days. 84% of participants in both active groups experienced reductionin hair density and hair thickness resulting into overall hair growth reduction.

### Procedure for preparing a Herbal Depilatory Cream:

There are following points to prepare a depilatory creams and formula for preparing of depilatory cream were given in table 1

- Measure the accurate weight of cetyl alcohol, triethanolamine, and liquid paraffin and mixed well and form a base of cream.
- Then add distilled water and thioglycolic acid into the base.
- Accurately weighed the ash of the leaf of Prosopis cineraria, and then add in the above mixture.
- Then mixed well the extract of Aloe barbadensis, Citrus limonis in the cream.

**Table : Formula for preparing of Depilatory Cream**

Sr.no.	Ingredients	Role
1.	Leaf of Prosopis cineraria	Removal of hair
2.	Aloe barbadensis extract	Antibacterial
3.	Citrus limonis	Skin lightening agent
4.	Thioglycolic acid	Removal of hair
5.	Cetyl alcohol	Emulsifier
6.	Triethanolamine	PH stabilizer
7.	Liquid paraffin	Softening agent
8.	Distilled water	Cleansing agent
9.	Perfumes	Masking the unpleasant smell of cream

### Evaluation of Physical properties :

- Particle Size and Density: Observed with naked eyes against white background and particle measurement such as diameter, area and sphere volume was determined by using microscope with camera and software Medical Pro (Version 3.0).

- Viscosity: Viscosity of the formulated cream was determined using Brookfield Viscometer RV model. Spindle no. 5 and spindle speed 10 rpm at 25°C was used, the corresponding dial reading on the viscometer was noted.
- Adhesion force: Mechanical parameters were determined by Texture Analyzer TA- XT2.
- pH: The pH of formulated cream was determined using Digital pH meter LT-11. About 2gm of formulation was dispersed in 20 ml of distilled water. The electrode was immersed in cream solution and readings were recorded on pH meter.

### Discussion :

The different concentration of cetyl alcohol, liquid paraffin, water and perfume were used in the formulation of cream base. Extraction of Neem & aloe vera were added in cream base. Extract of prosopis cineraria is also added in a cream base. Thioglycolic acid was used to accelerate the activity and herbal depilatory cream was successfully prepared. The Formulas were all green in colour and smelled strongly of orange oil. Spreadability denoted the extent of area to which the cream readily spreads on application to skin or the affected part. The cream spread consistently and smoothly. The homogeneity of cream is good. The cream does not show any side effect and removes hair. It was implied that the cream's depilatory properties exist.

### Conclusion :

The herbal substances and plants in everyday life has greatly improved. Herbal plants contain phytoconstituents that have potential medicinal and hair depilatory properties. All the formulations were evaluated for their physicochemical characteristics and Pharmacological activity.

### REFERENCES:

1. [https://learn.org/articles/What\\_is\\_Cosmetic\\_Science.html#:~:text=Cosmetic%20Science%20Defined,field%20in%20a%20positive%20way.](https://learn.org/articles/What_is_Cosmetic_Science.html#:~:text=Cosmetic%20Science%20Defined,field%20in%20a%20positive%20way.)
2. <https://www.slideshare.net/priyapatil107/cosmetic-science>
3. <https://www.mbarendezyous.com/essay/cosmetic-industry/>
4. <https://in.docworkspace.com/d/sIDHpw8ynAZjKjJwG?sa=00&st=1t>
5. <https://corpbiz.io/learning/import-license-of-drugs-and-cosmetics-in-india/>
6. <https://www.presentationeze.com/presentations/quality-assurance-qualitymanagement/quality-assurance-qualitymanagement-full-details/document-control/batchmanufacturing-records/>
7. <https://www.slideshare.net/PranaliPalandurkar/master-formula-record-238823009>
8. <https://solutionpharmacy.in/good-documentation-practices/>
9. <https://www.qualitydigest.com/nov01/html/iqa.html>
10. <https://pharmastate.academy/handling-of-returned-goods/>
11. <https://in.docworkspace.com/d/sIGXpw8ynAc2iqJwG?sa=00&st=1t>
12. Anusuya R. Kashi, Bindu Sukumaran, Venna P. A text book of Pharmaceutical Quality Assurance, Nirali Prakashan, Page no-12.9-12.12
13. <https://www.sciencedirect.com/science/article/abs/pii/S0377221702002308>
14. [https://my.che.utah.edu/~tony/chen4903/equipment/M\\_Spray\\_Dryer/SOP1\\_Spray\\_Dryer.doc](https://my.che.utah.edu/~tony/chen4903/equipment/M_Spray_Dryer/SOP1_Spray_Dryer.doc)
15. [https://in.docworkspace.com/d/sIBrpw8ynAc\\_ssZwG?sa=00&st=0t](https://in.docworkspace.com/d/sIBrpw8ynAc_ssZwG?sa=00&st=0t)
16. Anusuya R. Kashi, Bindu Sukumaran, Venna P. A text book of Pharmaceutical Quality Assurance, Nirali Prakashan, Page no-3.1-3.4.
17. Anusuya R. Kashi, Bindu Sukumaran, Venna P. A text book of Pharmaceutical Quality Assurance, Nirali Prakashan, Page no-3.6-3.7.
18. Dr. Aijaz A. Sheikh, Dr. Saurabh V. Deshmane, Dr. Kailash R. Biyani, Dr. Md. Rageeb Md. Usman, a Text Book of Cosmetic Science, Pee Vee Publication. Page no-29-33
19. [https://books.google.co.in/books?hl=en&lr=&id=6JIQXIP5cHoC&oi=fnd&pg=PR5&dq=infor:dynmfOZFAcIJ:scholar.google.com/&ots=7vNqg7XIJ1&sig=4Y6663O2tjLtXYqDEjCLRtPkHX4&redir\\_esc=y#v=onepage&q&f=false](https://books.google.co.in/books?hl=en&lr=&id=6JIQXIP5cHoC&oi=fnd&pg=PR5&dq=infor:dynmfOZFAcIJ:scholar.google.com/&ots=7vNqg7XIJ1&sig=4Y6663O2tjLtXYqDEjCLRtPkHX4&redir_esc=y#v=onepage&q&f=false)
19. <https://www.stablemicrosystems.com/BeginnersGuideToTextureAnalysis.html#:~:text=Texture%20Analysers%20are%20used%20to,a%20vast%20range%20of%20products.>
20. [https://www.brookfieldengineering.com/-/media/ametekbrookfield/manuals/texture/ct3\\_manual\\_m08-372f1116.pdf](https://www.brookfieldengineering.com/-/media/ametekbrookfield/manuals/texture/ct3_manual_m08-372f1116.pdf)
21. <http://www.bldeapharmacy.ac.in/assets/uploads/SOP-of-Brookfield-viscometer.pdf>
22. <https://www.pharmaguideline.com/2011/09/sop-for-automatic-capsule-filling.html?m=1>
24. [https://my.che.utah.edu/~tony/chen4903/equipment/M\\_Spray\\_Dryer/SOP1\\_Spray\\_Dryer.doc](https://my.che.utah.edu/~tony/chen4903/equipment/M_Spray_Dryer/SOP1_Spray_Dryer.doc)
25. [http://m.vacuumfreezedryer.cn/newsshow\\_111.html](http://m.vacuumfreezedryer.cn/newsshow_111.html)
26. <http://www.bldeapharmacy.ac.in/assets/uploads>
23. <http://pharmaqualityassurance.blogspot.com/2013/09/sop-for-operation-of-ultrasonic.html?m=1>

24. [https://rajswasthya.nic.in/Drug\\_Control/Cosmetics\\_procedure, etc as per new rules/Requirements of% 20plant and equipment-Cosmetics.pdf](https://rajswasthya.nic.in/Drug_Control/Cosmetics_procedure,_etc_as_per_new_rules/Requirements_of%20plant_and_equipment-Cosmetics.pdf)
25. <https://rjptonline.org/HTMLPaper.aspx?Journal=Research%20Journal%20of%20Pharmacy%20and%20Technology;PID=2020-13-4-16>
26. Spare cash goes on looking good." Market Research World. (Accessed October 17, 2012)
27. Singh, Lalit. —Behaviour and attitude of male consumers towards cosmetic products." Master's thesis, NIILM Centre for Management Studies, Noida, India, 2011
28. Nangia, Vinita Dawra. "You can be beautiful too!" Times of India (Pune), September 2, 2012, sec. Living.
29. <https://www.pharmaguideline.com/2012/01/sop-for-operating>
30. Depilatory Creams: How Do They Work and Are They Safe?  
<https://www.webmd.com/beauty/what-to-know-depilatory-creams>
31. <https://pubchem.ncbi.nlm.nih.gov/compound/Thioglycolic-acid>
32. <https://pubchem.ncbi.nlm.nih.gov/compound/1-Hexadecanol>
33. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4791507/>
34. Postajian M. Cold wax depilatory composition and related process. United States Patent, US7,867,289, B2, 2011.
35. Available:<https://www.beautyimageusa.com/blog/hot-wax-vs-cold-wax-everythingyou-need-to-know>
36. Anatomy and Physiology of Hair Bilgen Erdoğan Submitted: June 14th, 2016Reviewed:December 15th, 2016 Published: May 3rd, 2017 DOI: 10.5772/67269
37. Lachman L, Lieberman HA, Kang JL. The Theory and Practice of Industrial Pharmacy. 3rd edition, Varghese Publishing House, Bombay, 1987:538-555.

