1. ABSTRACT

These days, skin conditions are a major cause of illness for people of all ages. Feet are also important organ of our body used to perform activities like walking, running and jumping but are often neglected. If someone has a crack in their foot's heel, it hurts and is quite uncomfortable. Environmental factors contribute to the growth of germs and fungi on human skin. They need to be taken care. The main motive of our formulation was to formulate and to develop the anti-crack herbal cream.

This factor is taken into account when creating HERBAL HEEL CRACK CREAM. That cream's function is to hydrate the heel, and its emulsion is w/o type (cold cream). Cold cream works by producing an oily coating on the skin that aids in reducing water loss from the skin to the environment. Water serves to hydrate and refresh the skin while beeswax work as emollients, which aid to soften and smooth the skin. The key ingredient in these formulations is bael leaves extract has wound healing properties and Turmeric extract also has antibacterial and antifungal properties. Coconut oil and vitamin E both shows significant improvement in skin hydration Honey is natural moisturizer and antibacterial activity. Camphor shows anti-inflammatory activity and gives cooling effect. Roseoil essential oil is used in fragrances. This cream is homogeneous, spreads readily, and is naturally fatty. This is W/O emulsion and with an acidic pH (within the range of skin pH). There was no phase separation in this cream. Formulated herbal crack cream is as good as marketed herbal crack cream.

KEYWORD: Bael leaves extract, Turmeric, Coconut oil, Vit E, Aloe vera gel, Honey, Camphor.
2. INTRODUCTION

The skin is the largest organ of the body, with a total area of about 20 square feet. Skin has three layers: The epidermis, the outermost layer of skin, provides a waterproof barrier and creates our skin tone. The cosmetics are the utility product used extensively throughout the world for maintaining and improving general appearance of face and other part of body e.g. skin, eye, hair, hand, etc. herbal cosmetics are the preparation which represent cosmetics associated with active bio-ingredients, nutraceuticals and pharmaceuticals. Cosmetics are products that are used to cleanse and beautify the skin. The first recorded use of cosmetics is attributed to Egyptians in 4000 B.C. Pharmaceuticals are essentially drug products and are defined as products that prevent, mitigate, treat or cure disease and affect the structure or function of the body. The skin underneath your feet is often dry, rough and chapped. Disorders - Athlete's foot, psoriasis, eczema, thyroid disease, diabetes and some other skin conditions can be the cause of cracked heels. Maintaining healthy skin is important for a healthy body. Natural treatment is cheap and claimed to be safe. A review of some plants for the treatment of skin diseases is provided that summarizes the recent technical advancements that have taken place in this area during the past 17 years. It is also suitable raw material for production of new synthetic agents. Herbs used in cosmetics preparation have varieties of properties like Antioxidant, Antiinflammatory, Antiseptics and Antibacterial etc.

**Definition:** Creams are semisolid emulsion system with opaque appearance as contrasted with translucent ointments. Cream is used for external purpose. Creams are intended for application to the skin and mucous membrane.

Their consistence depends on whether the
1. Emulsion is water in oil or oil in water
2. Nature of solids in internal phase.

Skin carecreams can be classified on different basis
1. According to function. E.g. cleansing, foundation, massage etc
2. According to characteristic properties, e.g. cold creams vanishing creams etc.
3. According to nature or type of emulsion.
4. Skin nourishment is important and required to preserve the normal characters of the skin or as a treatment for dry skin.
Oil glands are not present in the skin on feet due to this they become dry and thus leads to crack. Due to lack of care and improper footwear it may lead to various disorders. External penetration of dirt, bacteria through cuts and wounds may give rise in infection to the crack. Creams orgelsare the topical preparations usually meant for the application on skin. They may be either considered as cosmetic products or pharmaceutical products. They provide a barrier to protect the skin. Herbal cosmetics are the natural cosmetics or products obtained from various parts of various plants such as flower, fruit, leaves and bark. Herbal cosmetics are used since ancient times and have immense benefits.

The herbs used here in the formulation are commonly having antiseptic and germicidal action. Turmeric shows very effective germicidal action. Rose water is also used for perfume as well as to make use of its astringent property. Aloe vera is the most preferred herb for herbal cosmetics hence the extract for the same was used. There are various uses of Alovera on skin such as used for smoothing purpose, for healing purpose and for perfume too. Aloe vera has been mentioned as high ranking and all purpose herb from ancient times. Alovera gel is commonly used as emollient and for healing purpose. It shows anti-inflammatory, antibacterial, antifungal antioxidant property. In vivo studies report enhanced cell growth, collagen synthesis around wound sites and quicker epithelialization. A specific component of Bael leaf extract is reported to increase the tensile strength of skin that newly forms around wounds and even stimulate angiogenesis.

3. Importance of investigation of herbal heel crack cream
Certainly! Investigating herbal heel crack creams is essential for understanding their efficacy and safety. Here are some key points.

3.1 Cracked Heels Overview
Cracked heels can occur due to various reasons, including lack of moisture, exposure to harsh footwear, and thickening of skin around the heels.
Symptoms may include dry skin, thickened skin, and heel pain.
Investigating the causes helps in understanding the condition and preventing relapses.

3.2 Herbal Creams for Cracked Heels
Herbal creams made from natural ingredients have gained popularity for treating cracked heels.
Some common herbal ingredients include Aloe vera, ginger, cocoa butter, Hedychium Spicatum, and Azadirachta indica. These creams are safe and effective, providing a barrier to protect the skin and promoting healing.

3.3 Anti-Inflammatory Properties
Herbal creams often have anti-inflammatory properties, which can soothe and heal cracked skin. Investigating the specific herbal extracts used in these creams helps determine their effectiveness.
Remember to consult a healthcare professional before using any cream, especially if you have underlying health conditions.

4. Objectives of herbal heel crack cream
The main objective of herbal heel crack cream is to treat cracked heels. These creams are formulated using natural plant extracts and aim to provide relief from dry, cracked skin on the heels. Here are some key objectives.

1. Moisturization: Herbal heel crack creams moisturize dry skin using emollients like shea butter, olive oil, and other natural ingredients.\[1\]

2. Promoting Healing: Herbal creams contain ingredients like allantoin and vitamins that promote healing and soothe irritated skin.\[1\]

These ingredients were found to be safe and effective for treating cracked heels. Herbal creams without side effects can act as a protective barrier for the skin. So, if you’re dealing with cracked heels, consider using herbal heel crack creams to nourish and heal your skin!

5. Review of work done on herbal heel crack cream
Dr Nidhi N Chauhan and Parul Vasava (28th January, 2020) prepared and evaluated herbal crack cream for Skin diseases are numerous and a frequently occurring health problem affecting all ages from the neonates to the elderly and cause harm in number of ways. If the cracks in the heels are deep, they can be painful, hurting when a person stands up, and they may sometimes bleed. Some wild plants and their parts are frequently used to treat these diseases. Herbal crack cream contains the extracts of the plant consists of five ingredients viz., extract of Daruharida (Berberis aristata DC.), Pashanbheda (Bergenia ligulata (Wall.) Engl.),
Jivanti (Leptadeniareticulata W. & A.), kampilak (Mallotusphilippensis Muell.-Arg.), Manjistha (Rubiacordifolia Linn.) were used to prepare Herbal crack cream. The main objective of the research work was to prepare and evaluate Herbal crack cream and the results showed that Herbal crack cream passes all Parameters related to cream and TLC of formulated cream and extract showed that the tannins, flavonoids and alkaloids were found to be present in mentioned medicinal plants.

6. Sources (Ingredients) information

6.1 Indian Bael

Aegle marmelos Linn. is a perennial tree belonged to the family Rutaceae found in the central and South India which is commonly known as Bael in Hindi. Leaves and fruits of Aegle marmelos are used in folk medicines and by the Ayurvedic practitioners. Antioxidant activity of Aegle marmelos plants might be due to the presence of phenolic compounds such as flavonoids. This study reveals the antioxidant potentials of Aegle marmelos methanolic extracts of leaves. Standard methods were adopted to screen phytochemical nature, antioxidant, wound healing and properties of A. marmelos leaves. Results of phytochemical screening of the aqueous extract revealed the presence of steroid, terpinoids, saponins, tannis, lignin, flavonoids. In-vivo antioxidant activity of the methanolic leaf extracts revealed that the leaf extracts to possess good antioxidant power to heal the wounds.

![Image of Indian Bael](image)

**Figure 1: Indian Bael.**

**Chemical Constituents**

Various phytochemical constituents like alkaloids, coumarin sand steroids have been isolated and identified from different parts of a tree. Coumarins, marmelosin, marmesin, imperatorin,
marmin, alloimperatorin, methyl ether, xanthotoxol, scopoletin, scopolone, umbelliferone, psoralen and marmelide have been reported.

**Health benefits**

- Ulcer healing
- Wound Healing Activity
- Analgesic activity
- Antifungal activity
- Antimicrobial activity

6.2 Turmeric

Turmeric is an herbaceous evergreen plant in the Zingiberaceae (ginger) family. It is cultivated extensively in Asia mostly in India and China. Probably originated from India, turmeric has been used in India for at least 2500 years. Curcumin (diferuloylmethane), the main yellow bioactive component of turmeric has been shown to have a wide spectrum of biological actions. These include its antiinflammatory, antioxidant, anticarcinogenic, antimutagenic, anticoagulant, antifertility, antidiabetic, antibacterial, antifungal, antiprotozoal, antiviral, antifibrotic, antivenom, antulcer, hypotensive and hypocholesteremic activities. For traditional Ayurvedics, turmeric plant was an excellent natural antiseptic, disinfectant, anti-inflammatory, and analgesic, while at the same time the plant has been often used to aid digestion, to improve intestinal flora, and to treat skin irritations.

![Figure 02: Turmeric.](image-url)
Chemical constituents
Various phytochemical constituents like Curcuminoid, a natural coloring agent, is recognized as a rich source of phenolic compounds, consisting of three different compounds curcumin, demethoxycurcumin and bisdemethoxycurcumin, Zingiberene.

Health benefits
- Anti-aging properties
- Moisturises dry skin
- Helps treat stretch marks
- Inflammation.
- Degenerative eye conditions.
- Metabolic syndrome.
- Arthritis.
- Hyperlipidemia (cholesterol in the blood)
- Anxiety.
- Muscle soreness after exercise.
- Kidney health.
- Helps protect against environmental damage

6.3 Aloe vera gel
Aloe vera is an herbaceous and perennial plant that belongs to the Liliaceae family and used for many medicinal purposes. The present study aimed to systematically review clinical trials regarding the effect of Aloe vera on the prevention and healing of skin wounds. Aloe vera can inhibit thromboxane (an inhibitor of wound healing), improve the wound healing process, and reduce inflammation. Aloe vera is effective in inhibiting inflammatory reactions. Aloe vera gel can increase the amount of collagen in wounds also change the composition of collagen, increase collagen cross-linking and thereby promote wound healing. Considering the availability of several clinical trials on the effect of Aloe vera on the prevention and healing of skin wounds, as well as its popularity among people and widespread use in the cosmetic industry, the present study aimed to review research studies on this topic.
Chemical constituents

Aloe vera contains more than 75 different compounds, including vitamins (vitamin A, C, E, and B12), enzymes (i.e., amylase, catalase, and peroxidase), minerals (i.e., zinc, copper, selenium, and calcium), sugars (monosaccharides such as mannose-6-phosphate and polysaccharides such as glucomannans), anthraquinones (aloin and emodin), fatty acids (i.e., lupeol and campesterol), hormones (auxins and gibberellins), and others (i.e., salicylic acid, lignin, and saponins). The most important constituents of Aloes are the three isomers of Aloins, Barbaloin, β-barboloin and Isobarbaloin, which constitute the so-called 'crystalline' Aloe, vitamins, minerals, enzymes, sugars, anthraquinones or phenolic compounds, lignin, saponins, sterols, amino acids and salicylic acid.

Health benefits

- Anti-tumor activity
- Anti-inflammatory activity
- Skin protection activity
- Anti-diabetic activity
- Anti-viral activity
- Antiseptic activity
- Wound healing properties
6.4 Honey
Honey, a concentrated natural product, is produced by honeybees (*Apis mellifera*) from the nectar of flowers. Due to the presence of a plethora of bioactive compounds, as well as unique physicochemical properties, honey has been widely used as medicine throughout human history along with its extensive utilization as common food and flavoring agent. The application of neat honey for therapeutic purpose. Honey is acidic (pH 3–5) in nature due to the breakdown of glucose into gluconic acid by glucose oxidase from the bee crop. Honey in a variety of medications such as dressings for wound healing the use of honey-based mixtures for the management of different diseases such as fever, pain, and wounds. The usage of honey sustained into modern folk medicine, for example, for the treatment of coughs and sore throats, dry eye symptoms, leg ulcers, wounds, earache, gastric ulcers, and constipation. Honey has been impregnated with other materials, for example, collagen, gelatin, starch, cellulose, alginate, or agarose, to derive medicinal formulations, which, compared to neat honey, might be more convenient to use and provide a target oriented therapeutic application. FDA-approved medical-grade honey products, focusing on the wound-healing potential of honey along with its mechanism of action. Honey based creams helps to entrap water, keep the skin moist, and provide an emollient protective film, which are all important elements for wound healing.

![Figure 04: Honey.](image)

Chemical Constituents
Generally honey has a content of 80–85% carbohydrates, 15–17% water, 0.3% proteins, 0.2% ashes and minor quantities of amino-acids, phenols, pigments and vitamins. The carbohydrate components of honey contain various types of mono and disaccharides. The average concentration of Fructose, Glucose, Sucrose and reducing sugars are 38.38%, 30.31%, 1.31% and 76.65% respectively.
Health Benefits

- Treatment of eye diseases, bronchial asthma, throat infections, tuberculosis, thirst, hiccups.
- Also for fatigue, dizziness, hepatitis, constipation, worm infestation, piles, eczema, healing of ulcers, and wounds and used as a nutritious supplement.
- Antibacterial and antifungal properties.
- Phytonutrient powerhouse.
- Help for digestive issues.

6.5 Coconut oil

Coconut oil (or coconut fat) is an edible oil derived from the kernels, meat, and milk of the coconut palm fruit. Coconut oil is a white solid fat below around 25 °C (77 °F), and a clear thin liquid oil in warmer climates. Unrefined varieties have a distinct coconut aroma, cosmetics and detergent production. The oil is rich in medium-chain fatty acids. Due to its high levels of saturated fat, numerous health authorities recommend limiting its consumption as a food.

Chemical Constituents

Coconut oil is made up of about 90% saturated fats and 9% unsaturated fats. However, the saturated fats in it differ from saturated fats in animal fats. Over 50% of the fats in coconut oil are medium chain fatty acids, such as lauric acid (12:0). Coconut oil is the highest natural source of lauric acid. Lauric acid and its derivative monolaurin constitute around 50% of coconut fat-derived lipid.

Health benefits

- Encourage fat burning
• work as a quick source of energy
• Lauric acid in coconut oil may have antimicrobial properties against a variety of harmful microorganisms.
• Coconut oil can increase blood ketone concentrations, which may help reduce seizure frequency.
• Coconut oil may help moisturize skin and improve skin barrier function.
• Coconut oil may help strengthen hair by increasing flexibility and reducing the breakage of hair strands.
• Coconut oil may be a cost-effective way to improve oral health due to its lauric acid content.
• coconut oil is rich in MCTs, which significantly increase blood levels of ketones, it may potentially help with symptoms of Alzheimer’s disease.

6.6 Camphor
Camphor used to be made by distilling the bark and wood of the camphor tree. Today, camphor is usually manufactured from turpentine oil. It is used in products such as Vicks VapoRub. Camphor products can be rubbed on the skin (topical application) or inhaled. Be sure to read the label to find out how the product should be administered. People apply camphor to the skin to relieve pain and reduce itching. It has also been used to treat toenail fungus, warts, insect bites, cold sores, hemorrhoids, and osteoarthritis. Camphor is also applied as an eardrop and for treating minor burns. It is important not to apply camphor to broken skin, because it can enter the body quickly and reach concentrations that are high enough to cause poisoning. Camphor is also active against fungi that cause infections.

Figure 06: Camphor.
Health benefits

- Acute pain. Applying camphor to the skin seems to reduce pain.
- Applying camphor to the skin seems to reduce itching.
- Uses of Camphor for Managing Osteoarthritis.
- Camphor may be used in the management of conditions characterised by allergic skin inflammation.
- It may show antiseptic activity.

7. Tools and techniques of research

7.1 Plan of work

Phase 1
1. Collection of crude drugs.
2. Extraction of crude drugs.
3. Phyto-chemical screening of extracts.

Phase 2
Formulation of crack cream.

Phase 3
Evaluation of formulated crack cream.

7.2 List of equipment’s and glassware’s used.

Table No. 1: List of equipment.

<table>
<thead>
<tr>
<th>SR. NO.</th>
<th>NAMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Weighing balance</td>
</tr>
<tr>
<td>2.</td>
<td>pH meter</td>
</tr>
<tr>
<td>3.</td>
<td>Sonicator</td>
</tr>
<tr>
<td>4.</td>
<td>Mechanical stirrer</td>
</tr>
</tbody>
</table>

7.3 Extraction of Aegle marmelos Linn (Indian bael) powder by Maceration Method:

Indian bael powder 150 gm weighed accurately. Then, they were grounded to fine powder and separately suspended in methanol in a beaker to avoid solvent evaporation, the container was closed using aluminium foil and stored in shadow for 8 days for maceration. The extracts were then filtered and concentrated in evaporator to a completely dried film.
7.4 Extraction of Turmeric powder by Maceration Method

Turmeric powder 50 gm weighed accurately. Then, they separately suspended in ethanol in a beaker to avoid solvent evaporation, the container was closed using aluminium foil and stored in shadow for 8 days for maceration. The extracts were then filtered and concentrated in evaporator to a completely dried film.

7.5 Phytochemical screening methods

Aegle marmelos Linn (Indian bael)

The methanol extracts of Agele marmalos was evaluated for the presence of various phyto constituents like anthraquinone, glycosides, saponins, tannins and phytosterols by different qualitative chemical tests.
1. Tests for Saponins
300 mg of the solvent extract was boiled with 5 ml of water for two minutes. The mixture was cooled and mixed vigorously and left for three minutes. The formation of frothing indicates the presence of saponins.

2. Test for Tannins
An aliquot of the solvent extract was added to sodium chloride to make 2 % strength. It was filtered and mixed with 1% gelatine solution. Precipitation indicates the presence of tannins.

3. Test for triterpenes
300 mg of extract was mixed with 5 ml of chloroform and heated in a water bath for 30 minutes. The chloroform solution is then treated with a small volume of concentrated sulphuric acid and mixed properly. The appearance of red colour indicates the presence of triterpenes.

4. Test for alkaloids
300 mg of extract was digested with 2 M hydrochloric acid. This acidic filtrate was mixed with amyl alcohol at room temperature, and the alcoholic layer was examined for the appearance of pink colour which indicates the presence of alkaloids.

5. Test for flavonoids
The presence of flavonoids was determined using 1% aluminium chloride solution in methanol, concentrated hydrochloric acid, magnesium chloride and potassium hydroxide solution.

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Figure 09: Phytochemical test of bael.
Turmeric

1. Test for Alkaloids

The extract was mixed with 3 ml of dilute hydrochloric acid and then filtered thoroughly. The filtrate was tested carefully with following tests.

a) Wagner Test: 1 ml or 2 ml of the filtrate extract was treated with Wagner’s reagent; formation of brown reddish precipitate shows positive result of alkaloids.

b) Dragendorff’s Test: To a few ml of filtrate, 1–2 ml of Dragendorff’s reagent was added; formation of prominent yellow precipitate indicates the presence of alkaloids.

2. Test for Glycosides

To 2 ml test solution, added with equal quantity of Fehling’s solution A and B and solution was heated gives the positive result of glycoside. A brick red precipitate was observed.

3. Test for Flavonoids

a) Alkaline Reagent Test: The test solution, was treated with sodium hydroxide solution, which gives a yellow or red colour.

4. Test for Tannins

a) Gelatin Test: A white precipitate is obtained by mixing of 2 ml test solution and 1% Gelatin solution containing 10% sodium chloride.

5. Test for Saponins

a) Foam Test: Researchers tries to find out the presence of Saponins as follows: 5 ml extract was shaken with 20 ml distilled water and then heated to boil. Frothing shows the presence of saponins.

Figure 10: Phytochemical test of Turmeric.
Table no. 02 Phytochemical tests results.

<table>
<thead>
<tr>
<th>Sr. no</th>
<th>Phytochemical tests</th>
<th>Indian Bael</th>
<th>Turmeric</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alkaloid test</td>
<td>+ ve</td>
<td>+ ve</td>
</tr>
<tr>
<td>2</td>
<td>Saponins</td>
<td>+ ve</td>
<td>+ ve</td>
</tr>
<tr>
<td>3</td>
<td>Tannins</td>
<td>+ ve</td>
<td>+ ve</td>
</tr>
<tr>
<td>4</td>
<td>Flavonoids</td>
<td>+ ve</td>
<td>+ ve</td>
</tr>
</tbody>
</table>

8. Research Methodology

8.1 Formulation table.

Table no. 03: Formulation table.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Ingredients</th>
<th>Quantity (F1)</th>
<th>Quantity (F2)</th>
<th>Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bael extract</td>
<td>1gm</td>
<td>1 gm</td>
<td>Wound healing</td>
</tr>
<tr>
<td>2</td>
<td>Turmeric</td>
<td>1gm</td>
<td>1gm</td>
<td>Antibacterial</td>
</tr>
<tr>
<td>3</td>
<td>Alovera</td>
<td>5ml</td>
<td>5ml</td>
<td>Skin hydration</td>
</tr>
<tr>
<td>4</td>
<td>Honey</td>
<td>1gm</td>
<td>1gm</td>
<td>Skin soothing</td>
</tr>
<tr>
<td>5</td>
<td>Coconut oil</td>
<td>2ml</td>
<td>1ml</td>
<td>Emollient</td>
</tr>
<tr>
<td>6</td>
<td>Camphor</td>
<td>1 gm</td>
<td>1 gm</td>
<td>Cooling effect</td>
</tr>
<tr>
<td>7</td>
<td>Bees wax</td>
<td>8 gm</td>
<td>10 gm</td>
<td>Skin soothing</td>
</tr>
<tr>
<td>8</td>
<td>Glycerine</td>
<td>5ml</td>
<td>4ml</td>
<td>Moisturizer</td>
</tr>
<tr>
<td>9</td>
<td>Methyl paraben</td>
<td>1 gm</td>
<td>2 gm</td>
<td>Preservatives</td>
</tr>
<tr>
<td>10</td>
<td>Propylene glycol</td>
<td>2ml</td>
<td>1ml</td>
<td>Humectant</td>
</tr>
<tr>
<td>11</td>
<td>Liq. Paraffin</td>
<td>2ml</td>
<td>1ml</td>
<td>Skin soothing</td>
</tr>
<tr>
<td>12</td>
<td>Borax</td>
<td>1 gm</td>
<td>2 gm</td>
<td>Emulsifying agent</td>
</tr>
<tr>
<td>13</td>
<td>Distilled water</td>
<td>qs</td>
<td>qs</td>
<td>Vehicle</td>
</tr>
<tr>
<td>14</td>
<td>Perfume</td>
<td>qs</td>
<td>qs</td>
<td>For fragrance</td>
</tr>
</tbody>
</table>

Figure 11: Weighed Ingredients.

8.2 Procedure for cream formulation

Oil phase

Beeswax and propylene glycol Coconut oil Glycerine propylene glycol liq. Paraffin were placed in the first beaker and then heated in a water bath for uniform mixing. After a few minutes, an oil phase formation took place.
Aqueous phase
In a second beaker beal leaf extract, Turmeric extract, alovera, honey, camphor powder, methyl paraben and borax were placed with distilled water, and heated on water bath to obtain a mixture.

Addition
The oil phase was then added to the aqueous phase and perfuming agent was added with continuous stirring until a semisolid mass was achieved.

![Figure 12: Cream Formulation.](image)

8.3 EVALUATION OF CRACK CREAM
The evaluation of herbal crack cream was done as follows.

Physical Evaluation Parameters
The herbal crack cream formulations were evaluated for physical parameters including colour, odour, consistency, and state of the formulation and results are shown in Table No.

a) **Colour:** The colour of formulation was observed by visual examination.

b) **Odour:** The odour of cream was found to be characteristics.

c) **Appearance:** The appearance of the formulations was examined by visual method.

d) **Consistency:** The consistency of the formulations was evaluated by rubbing the formulations between two fingers.
e) **pH:** The pH of the formulated herbal crack creams was checked on a calibrated, digital pH meter. The cream was dissolved in ethanol and kept aside for some time and the pH was checked.

f) **Irritancy test:** Mark an area (1sq.cm) on the left-hand dorsal surface. The cream was applied to the specified area and time was noted. Irritancy, erythema, oedema, was checked if any for regular intervals up to 24 hours and repeated.

**Table no.04: Irritancing test.**

<table>
<thead>
<tr>
<th>SR. NO.</th>
<th>PARAMETER</th>
<th>F1</th>
<th>F2</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Irritation</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>02.</td>
<td>Redness</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>03.</td>
<td>Swelling</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

9. **MATERIALS AND METHODS**

Aegle marmelos Linn (Indian bael) powder, Turmeric Powder and other materials was purchased from Apurva Ayurved Shopee, nearby Mahalaxmi Temple, Neharu chouk, Gadhinglaj, 416502.

10. **RESULT AND DISCUSSION**

Result of evaluation parameters

**Table no. 04: Result of evaluation.**

<table>
<thead>
<tr>
<th>Sr no.</th>
<th>Parameters</th>
<th>Formulation(F1)</th>
<th>Formulation(F2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Colour</td>
<td>Light Wheat</td>
<td>Wheat</td>
</tr>
<tr>
<td>2.</td>
<td>Odour</td>
<td>Aromatic</td>
<td>Aromatic</td>
</tr>
<tr>
<td>3.</td>
<td>Appearance</td>
<td>Smooth</td>
<td>Poorly Smooth</td>
</tr>
<tr>
<td>4.</td>
<td>Consistency</td>
<td>Good</td>
<td>Fair</td>
</tr>
<tr>
<td>5.</td>
<td>pH</td>
<td>5.2</td>
<td>5.3</td>
</tr>
<tr>
<td>6.</td>
<td>Irritancy</td>
<td>No irritancy</td>
<td>No irritancy</td>
</tr>
</tbody>
</table>

The herbal heel crack cream was prepared using turmeric and beal leaf extract. Various evaluation parameters were performed for the effectiveness and stability of the cream. Both the formulations were found to be acidic in test. Consistency of formulation (F1) was found to be greater than that of the formulation (F2). Both the formulations showed better stability even after two months. No discoloration or change in odour was found after the period of two months and both of them showed satisfactory results with respect to appearance and ease of application as well. No microbial growth was observed in any of the formulation. On the basis of the satisfactory PH, the formulation (F1) was optimised and showed better results compared to formulation (F2).
11. CONCLUSION
Herbal products are in much demand as they have fewer side effects than that of the synthetic ones. The prepared herbal heel crack cream was effectively formulated and showed satisfactory results in terms of all evaluation parameters carried out for it. From the antimicrobial evaluation it was found that there was no microbial growth on the product. Thus, we can conclude that the prepared herbal heel crack cream is effective for cracked heels.

12. REFERENCE
8. Biresh K Sarkar1 * and Shailendra Singh Solanki2 Isolation, characterization and antibacterial activity of leaves extract of bael (Aegle Marmelos) INTERNATIONAL JOURNAL OF PHARMACY & LIFE SCIENCES


