Formulation and Evaluation of Botanicals Based Face Serum Containing Flax Seeds and Other Natural Ingredients

Anti-Ageing Face Serum

1Manorama S. Pardeshi, 2Renuka S. Takle, 3Revati Walekar, 4Sanika Tathe
1Assistant Professor, 2Student, 3Student, 4Student
Rajesh Bhaiyya Tope College of B. Pharmacy, Aurangabad, India

Abstract: Photo damage and ultraviolet (UV) rays can cause skin ageing and facial wrinkles, both of which are undesirable results. There are several naturally occurring plants and herbs that are filled with phytochemicals that may delay or even reverse the ageing process of the skin, but there are currently no effective ways to do so. Flax seeds (Linum usitatissimum), liquorice bark (Glycyrrhiza glabra var.), red hibiscus (Hibiscus coccineus), essential oils like jojoba oil, Juniper Berry’s oil, and glycerin are all oil in water-based face serum. Flax seeds contain essential fatty acids, which work from the inside out to keep your skin hydrated and glowing. And lignans in the oil help brighten and contain antioxidants that protect the skin from sun damage. Treating your skin with flaxseed oil facial is also a great way to combat wrinkles. Liquorice’s bark is enriched with UV-blocking enzymes that help ward off sun damage that can cause wrinkles to appear at an unwanted rate. The richness of vitamin C promotes collagen production and helps tighten the face, making it firm for your younger look. In addition, essential oils in serum provide healing properties and acne-fighting properties. Jojoba oil is a humectant ingredient with a trusted source, and its moisturizing effect is beneficial for the skin. Improving self-confidence is one of the biggest advantages of using anti-ageing treatments. A person feels good when they look good.

Index Terms: Antioxidants, Anti-aging, Essential oils

INTRODUCTION
The skin, the largest and most important organ of the body, is constantly attempting to repair and preserve itself. Dry patches of skin can appear from a variety of causes, such as UV rays and pollution. Additionally, sleeping in makeup can irritate skin or cause an allergic reaction. There are numerous types of skin care products available worldwide for safeguarding the skin, including gel, sunscreen lotion, face wash, skin serum, and anti-pigmentation lotions. A serum is a type of skin care item that has a gel, light lotion, or moisturizing consistency that can transfer active ingredients to the skin more deeply. Serum functions as an anti-ageing skin product and offers your skin a smoother, denser texture, reduces pore creation, intensively hydrates, and prevents wrinkle. The active chemical constituents in the flax seeds as omega-3 fatty acid, which has great anti-inflammatory properties. Since acne is primarily caused by inflammation, maintaining an omega-3 rich diet helps prevent or reduce the severity of acne. The omega-3 in flaxseeds helps your body to produce collagen that keeps skin smooth and elastic. The truth is the more omega-3 acids you have in your body, the stronger the layer of fat will be around your skin cells. This means taking this miraculous anti-ageing constituent plumps up your skin and minimize the appearance of wrinkles. And treating your skin with flaxseed oil facial is also a great way to combat wrinkles. The chemical components that are the main active principles in the physiological activities of Hibiscus sabdariffa L. calyx are anthocyanin’s and polyphenols (protaocatechic acid and quercetin). The chock full of antioxidants, anthocyanocides in hibiscus play an amazing role in improving skin health by guarding it from radical damage and delaying the premature ageing of the skin. Liquorice has natural antimicrobial and antifungal properties and is great for wound cleaning. It also helps to keep swelling and redness to a minimum. The Liquorice works by reducing the amount of bacteria on the skin and allowing the skin to repair faster. Along with these essentials oils that are used in this serum, Juniper Berry Oil is used in low dilutions for skin care purposes such as treating acne, dermatitis, and eczema. Jojoba oil which is a humectant ingredient Trusted Source. This means that it works to attract water to the top layer of the skin, helping to keep the skin hydrated. This may help prevent bacterial infections like acne. Jojoba oil contains natural forms of vitamin E. This vitamin works with your skin Trusted Source as an antioxidant

MATERIALS AND METHODS
I. Flax seeds
Biological name: Linum usitatissimum
Synonym: Linseeds
Family: Linaceae, commonly known as the flax family.
Chemical constituents: linolenic acid, linoleic acid, lignans, cyclic peptides, polysaccharides, alkaloids, cyanogenic glycosides, and cadmium.
Uses:
1. Anti-ageing
2. Anti-acne
3. Fight wrinkles
4. Make skin glow.

© 2023 IJRTI | Volume 8, Issue 4 | ISSN: 2456-3315
II. Liquorice root
Biological name: Glycyrrhiza glabra var
Synonym: Glycyrrhiza.
Family: Leguminosae
Chemical constituents: Glycerirhizin, glycerrhinic acid, saponins

Uses:
1. Skin brightening
2. Protection from sun
3. Prevent premature ageing
4. Wound healing and antibacterial

III. Hibiscus flower
Synonym: china rose
Biological name: Hibiscus rosa-sinensis
Chemical constituents: anthocyanins and polyphenols

Uses:
1. Anti-acne
2. Pore cleansing
3. Potent Moisturizer
4. Minimize irritation

IV. Jojoba oil
Biological source: is extracted from the seeds of the jojoba plant Simmondsia chinensis
Chemical constituents: wax esters, few free fatty acids, alcohols, and hydrocarbons

Uses:
1. Skin moisturizer
2. Anti-inflammatory
3. Natural humectant
4. Control sebum secretion

V. Juniper berry oil
Biological source: dried, ripe fruits of Juniper communis L by steam distillation.
Chemical constituents: This essential oil contains terpenes (α-pinene, myrcene, limonene, γ-terpinene, linalool, terpine-4-ol, geraniol, bornol)

Uses:
1. Natural antiseptic
2. Anti-acne
3. Treating dermatitis, eczema

Table. 1

<table>
<thead>
<tr>
<th>SR. NO</th>
<th>TEST</th>
<th>PROCEDURE</th>
<th>OBSERVATION</th>
<th>INFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>TESTS FOR FLAVONOIDS (Sodium hydroxide test)</td>
<td>2 ml aqueous extract of sample solution + 1 ml of 2 N NaOH</td>
<td>Yellow Color</td>
<td>Flavonoids present</td>
</tr>
<tr>
<td>2.</td>
<td>TESTS FOR PROTEIN (Biuret test)</td>
<td>Sample solution + 2 ml NaOH Solution = 6 drops of copper sulphate</td>
<td>Bluish violet color</td>
<td>Protein present</td>
</tr>
<tr>
<td>3.</td>
<td>Xanthoprotic Test</td>
<td>2 ml of sample solution + few drops of con. H2SO4 And heat</td>
<td>Yellow precipitate form</td>
<td>Protein present</td>
</tr>
</tbody>
</table>
CONFIRMATORY TEST FOR FLAX SEEDS

Table 2

<table>
<thead>
<tr>
<th>SR. NO.</th>
<th>INGREDIENTS</th>
<th>QUANTITY TAKEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Flax seeds</td>
<td>4 gm.</td>
</tr>
<tr>
<td>2</td>
<td>Liquorice root</td>
<td>2 gm.</td>
</tr>
<tr>
<td>3</td>
<td>Hibiscus flowers</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Juniper berry oil</td>
<td>1 drop</td>
</tr>
<tr>
<td>5</td>
<td>Jojoba oil</td>
<td>1 drop</td>
</tr>
<tr>
<td>6</td>
<td>Glycerin</td>
<td>1ml</td>
</tr>
<tr>
<td>7</td>
<td>Sodium meta bi sulphate ( preservative)</td>
<td>0.4 gm.</td>
</tr>
<tr>
<td>8</td>
<td>Distilled water</td>
<td>100ml</td>
</tr>
</tbody>
</table>
CONFIRMATORY TEST FOR LIQUORICE

FORMULATION OF FACE SERUM

Table: 3

<table>
<thead>
<tr>
<th>SR. NO.</th>
<th>TEST</th>
<th>PROCEDURE</th>
<th>OBSERVATION</th>
<th>INFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>TEST FOR IDENTIFICATION OF GLYCERRHIZIN</td>
<td>When 80% Sulphuric acid is added in powder form of liquorice</td>
<td>Deep yellow color</td>
<td>Glycerrhizin present, Flavone glycoside, liquiritin, chalcone glycoside present.</td>
</tr>
</tbody>
</table>

PROCEDURE: Emulsion (o/w) was prepared as per the formula given below. Oily phase consisting of juniper berry oil, jojoba oil, and glycerin mixed very well together. At the same time aqueous phase was prepared by heating flax seeds in a beaker with 100 ml of water on hot plate for 20 min, and then liquorice roots were added in the beaker and heated for 10 min until their essence properly mixed with each other. Beaker was taken from hot plate and immediately petals of hibiscus in a raw form were added. The mixture was filter out by using thin cotton cloth. Then oil phase were added drop by drop in the aqueous phase by mechanical stirring to get oil in water based biphasic emulsion.

FORMULA FOR FACE SERUM

EVALUATION

1. Colour and Appearance: The color and appearance of the formulation (flax seeds face serum) was observed visually which appeared translucent golden color.

![Figure 6](image_link)

2. Homogeneity: The formulation prepared had even distribution of the extracts made. The homogeneity of the preparation was confirmed visually by the absence of any particulate matter and also feeling the product by touch.

3. Spreadability: Spreadability denotes the extent of area to which the gel readily spreads on application to skin or the affected part. The bioavailability efficiency of a cream also depends on its spreading value.

4. Ph.: The pH of formulation was found 6.1. As the skin having an acidic pH around 4.1-6.7, this range of formulation is suitable for skin.

<table>
<thead>
<tr>
<th>SR. NO.</th>
<th>TEST</th>
<th>PROCEDURE</th>
<th>OBSERVATION</th>
<th>INFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Irritation test</td>
<td>No irritation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Spread ability</td>
<td>98 Percent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Ash value</td>
<td>0.01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSION

We made the anti-ageing serum by using flax seeds, liquorice root, Hibiscus flowers and essential oils as oil in water (o/w) Emulsion. The serum appears translucent golden in color and uniformly mixed together. It’s beneficial for reducing premature ageing and essential oils in the serum help soothing skin irritations and provide moisturizing effect. Additionally, more research is required to demonstrate the composition of the cosmetic serum’s safety and effectiveness and to expand it to include gel and cream formulation.
REFERENCES

3. Smriti Ojha*, Surabhi Sinha, Formulation and Evaluation of face serum containing bee venom and aloe vera gel, World journal of pharmaceutical research, Volume 8, Issue 2, 1100-1105
4. S. Budiasih1*, I. Masyitah1, Formulation and Characterization of Cosmetic Serum Containing Argan Oil as Moisturizing Agent.