

FORMULATION AND EVALUATION OF HERBAL FACE SERUM CONTAINING CYNODAN DACTYLON AND ORANGE PEEL EXTRACT

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ABSTRACT

UV exposure and photo degradation have the unfavourable effects of skin ageing and face wrinkles. Serum contains a complex formula, a high concentration of active ingredients, a non-oily finish, quick absorption, and the power to reach the deepest layers of the skin. The goal of the research was to create a serum based on these traits. Face serum is a highly concentrated cosmetic product made of olive oil, orange peel extract, cynadondactylon extract, and aloe vera gel. Face serum made from aloe vera, cynadondactylon extract, orange peel, and olive oil is a highly effective cosmetic. Owing to the serum's ability to absorb quickly and penetrate deeper. additionally, it possesses anti-bacterial, anti-fungal, and anti-inflammatory effects. Anti-inflammatory and antioxidant effects of cynadondactylon extract. The face serum's

physiochemical properties, pH, phase separation, and homogeneity were evaluated. The phase separation, homogeneity, and physical appearance did not alter, according to the stability investigation's findings.

KEYWORDS:- Face serum, Anti -inflammatory, Cosmetics, Anti- bacterial, Anti -oxidant.

INTRODUCTION

Serums are a type of skin care product with a moisturising consistency that has the capacity to enter the skin more deeply and release active ingredients. A decent face serum may give your skin a smoother, firmer texture, reduce pore size, and boost moisture levels. These elements are necessary for all skin types to have the healthiest skin possible. For oily and combination skin, gel and liquid preparations work best; for normal to dry skin, serums and light lotions work best; and for extremely dry to very dry skin, more emollient lotions and

moisturising creams work best. The wonderful elements for healthy skin are the same for everyone, regardless of product, texture, or personal choice. Texture is all about skin type. The body's biggest and most protective organ, the skin, works tirelessly to mend and restore itself. However, for a variety of reasons—including exposure to UV radiation, pollution, and cosmetics worn overnight—skin can occasionally develop dry patches.

Information of serum

Dr. Tsippora Shainhouse, FAAD, a board-certified dermatologist at SkinSafe Dermatology and Skin Care, described serums as thin-viscosity topical products that contain concentrated concentrations of active ingredients.

Large numbers of active molecules are supposed to permeate the skin's surface in a serum to achieve optimal efficiency. A shorter period of time is typically required to notice outcomes because of the increased attention.

Many individuals wonder why they can't just use a face cream or moisturiser to their skin instead of a serum. Although there is no hard and fast rule, research from 2011^{Trusted supply} suggests employing each and layering as a result.

Benefits of serum

If you use a facial serum that is well-suited for the type of problem you want to address, the serum can have a number of benefits.

Let us take a closer look at some of the key benefits of adding this product to your skincare routine.

Face serum advantages

Immediately absorbs into your skin. In terms of skin care products, serums are less heavy than moisturisers. The serum can be absorbed into your skin more readily due to its thinner viscosity. A face serum is therefore a great starting point for layering because of this.

Sensitive skin is soothed. According to Dr. Melanie Palm, a board-certified dermatologist at Art of Skin, serums, with their light formulations, are frequently preferable for people with acne-prone or oily skin types.

Enhances the look of wrinkles and fine lines. Retinol is one chemical found in several face serums that may help lessen the visibility of fine lines and wrinkles.

Defends your skin against oxidative damage and free radicals. Vitamin C, vitamin E, ferulic acid, green tea, resveratrol, and astaxanthin-containing serums are beneficial. Is Serum A Water-Based Moisturiser?

Serums, which are considered to be mild moisturisers, have a tendency to hydrate your skin. Use a barrier repair moisturiser together with your face serum for the greatest effect of hydration.

Face serums are translucent or transparent types of topical treatment, according to Abhisikta Hati, Senior Product Development Executive of Skin Kraft. Most of them are liquids that can be applied with a dropper. Serums are created specifically for increased active delivery and have superior spreadability and absorption. In contrast, the primary function of moisturisers is to hydrate and heal skin using the right proportions of humectants and ceramides.

The purpose of a face serum

Strong chemicals are immediately injected into the skin by serum. It dives deeply because it is composed of tiny molecules with strong penetration. Before choosing a facial serum, consider following: skin type consider, your skin type and the ingredients of your serum. If your skin type is already dry, you don't need ingredient that dry out your skin. skin problem. What are you trying to solve with a facial serum? Are those fine lines around the mouth or dark spots from sun exposure? Always look for ingredients that moisturizer such as ceramides act as cement for the skin and prevent moisture loss. Antioxidants like vitamin C and grape seed extract protect skin type sun damage and fight.

Types of face serum

1) The oil serum



The oil serum is the easiest to create. It frequently begins with a base of just high-quality, quickly absorbing carrier oils, commonly known as "dry" oils. The premium oils utilised in the serum contain polyphenols, essential fatty acids, and other compounds that may be broken down by the skin in addition to moisturising and barrier-repairing properties.

2) The gel serum



The gel serum Gel serums provide the skin a "tightening" sensation, giving your consumer the impression that their skin is momentarily lifted or tightened in particular regions of the face. The gel serum provides you the chance to include some fantastic water-based (hydrophilic) plant extracts because this formulation is water based.

3) The water based serum



The Water based serum Water-based serums are comparable to gel serums, although they may contain none or very little gums and thickeners. To administer high-performance hydrophilic plant extracts that are trapped against the skin beneath a cream or lotion, you would utilise a water-based face serum. Layering an anti-ageing face mist under an emulsion and then under an oil is the ideal technique to promote higher penetration of water-based compounds into the skin, delivering their high performance elements slightly deeper into the

layers of the skin. The oils will form an occlusive barrier that will promote higher component penetration.

4) The emulsion serum



The emulsion serum An emulsion-based face serum is a moisturiser that strengthens the skin's barrier function while also delivering high performance components to the skin. Two "immiscible" phases-phases like oil and water that don't want to mix-are combined in an emulsion. An emulsifier is used to bind water and oil together and retain them in a stable state. The best chance of delivering high performance actives deeply into the tissues of the skin is through an emulsion. Given the skin's barrier function, it is highly difficult for any cosmetic component to penetrate the dermis, yet an oil and water mixture is best suited to accomplish this remarkable feat. The skin's barrier function will be strengthened by the emulsion's moisturizing characteristics.

5) The pressed balm serum



The pressed balm serum A balm serum has a conventional balm basis of butters, waxes, and oils but also includes active substances that are oil-soluble (lipophilic) and may help the skin. The butters and waxes form an occlusive barrier on the skin that hydrates and nourishes it while allowing the pressed serum's active components to do their job. In a balm serum,

dozens of intriguing unique butters and waxes can be combined with thousands of exquisite plant oils.

Active ingredients used in face serum

1) *Cynodon dactylon*



Kingdom-Plantae

Division-Magnoliophyta

Class-Liliopsida

Order-Cyperales

Family-Poaceae

Genus-Cynodon

Species-Cynodondactylon

Synonyms: - Devil's Grass, Dog's Tooth Grass, Scutch Grass, Wire Grass) North Carolina Extension Gardener Plant Toolbox.

Other names: dūrvā grass, ethan grass, dubo, dog grass, dog's tooth grass, Bahama grass, crab grass, devil's grass, couch grass, Indian doab, arugampul, grama, wiregrass and scutch grass.

Benefits of *cynodon dactylon*

Ayurvedic system

1. Skin diseases

Ayurveda acharyas have grouped durva grass under skin friendly herbs. It helps to heal the wound fast and restores the color of skin. Use of Durva grass is recommended in Psoriasis, Herpes, unhealed wounds, allergic rashes and haemorrhoids. It heals the patches of psoriasis

and restores the normal color of skin. This herb reduces itching, heals the scaly skin and imparts normal color to skin.

2. Improvement of female fertility

Ayurvedic physicians recommend this grass in menorrhagia (excess bleeding during menstrual cycle), irregular menstrual cycle, and habitual abortion (repeated abortion). This herb also helps to fight PCOS (Polycystic Ovarian syndrome). It prevents abortion and strengthens the uterus. Cystitis and Urinary Tract Infection (UTI) – This grass has cooling properties. It increases the urine output and soothes the inner layers of bladder. It helps to reduce inflammation of mucosal layer of bladder in Cystitis and UTI.

2) Orange



Kingdom	:	Plantae
Division	:	Magnoliophyta
Class	:	Magnoliopsida
Subclass	:	Rosidae
Order	:	Sapindales
Family	:	Rutaceae
Genus	:	Citrus

Benefits of orange

Medicinal qualities of orange as per ayurveda

It has sweet, sour taste, light in digestion, cold in potency. When eaten raw pacifies vata, in cooked state pacifies pitta and kapha. Clears the channels of the body, purifies blood vessels, cleanses the gastro intestinal tract. Improves taste perception and increases appetite by enhancing digestive fire. It is a cardiac tonic. Improves strength and boosts immune system. Quenches thirst and it is a detoxification.

External use of orange

1) Acne and Pimples

Oranges taken internally or its peel if used externally gives good result in case of skin problems such as acne or pimples. According to Ayurveda, an aggravation of Kapha results in increased sebum production and clogging of pores. It further results in the formation of both white and blackheads. Another factor is pitta, an aggravation of Pitta causes red papules (bumps) and inflammation with pus. Applying Orange or its peel paste on the affected area helps in reducing acne or pimples. Because it balances kaphadosha. It also removes excess oil and reduces inflammation due to its Kashaya (Astringent) property.

3) Aleovera



Kingdom	:	Plantae
Clade	:	Tracheophytes
Clade	:	Angiosperms
Clade	:	Monocots
Order	:	Asparagales
Family	:	Asphodelaceae
Subfamily	:	Asphodeloideae
Genus	:	Aloe
Species	:	vera

Aloe vera in the ayurvedic medicine

- The healing plant is advised by Ayurveda for treating numerous skin conditions such wounds, insect stings, bruises, and dermatitis. Aloe Vera's antibacterial and antifungal qualities aid in the healing process by promoting increased blood flow to the injured area.

- The therapeutic effects of aloe vera on the digestive system are among its greatest advantages. Aloe is absolutely priceless for persons who have digestive system issues because of the high enzyme content and the anti-inflammatory effects of some of its ingredients. Due to its antiviral qualities, it aids in the healthy operation of the liver, blood circulation, and reproductive system. Aloe Vera is a fantastic remedy for the body.
- In traditional Ayurvedic medicine, fermented aloe gel is used to make tonic herbal wine, which is then administered to patients to cure their anaemia, digestive issues, various female reproductive issues, and liver disorders.
- The polysaccharides in aloe juice stimulate macrophages and white blood cells that fight viruses, making the healing plant a fantastic immune stimulant for people with chronic immunological disorders like polysaccharides or fibromyalgia.
- Heals constipation, keeps the stomach's pH at a healthy level, and aids in the recovery of inflammatory bowel conditions, dyspepsia, stomach, and duodenal ulcers.
- Aloe Vera is a fantastic natural treatment for bodily detoxification. Because of the unhealthy lifestyle we lead, we occasionally need to cleanse our systems. Regularly consuming aloe juice, however, offers a rich combination of vitamins, minerals, and microelements that support the health of our organs and help them deal with stress.
- Aloe Vera is also used in Ayurveda to nourish hair and treat itchy scalp because it feeds the hair deeply by supplying the essential vitamins and minerals.
- Aloe is also highly good for because to its antibacterial and antifungal qualities for combating the dandruff. Additionally, the enzymes in aloe gel remove dead skin cells from the scalp and hasten the healing of the skin tissue surrounding the hair follicles.
- Contrary to popular opinion, aloe vera can be utilised by men (particularly those with constitution Pita) to normalise sexual activities.
- Women can use Aloe Vera for almost all female diseases of the reproductive system – from disorders of the monthly cycle to coping with the problems of menopause.
- Aloe Vera juice is very useful for cardiovascular problems, problems of blood and blood vessels, associated with the imbalance of Pita dosha.
- The Ayurvedic medicine uses aloe for treatment of hypertension, hypotension, bleeding, anemia and other.
- The cholesterol is a silent killer, that prevents blood circulation and clogs the arteries. Causes for high cholesterol may be many – from poor nutrition to immobilization or genetic predisposition.

4) Rose



Kingdom	:	Plantae
Division	:	Magnoliophyta
Class	:	Magnoliopsida
Order	:	Rosales
Family	:	Rosaceae
Subfamily	:	Rosoideae
Genus	:	Rosa L

Benefits of rose

- Anti-depressant
- Anti- spasmodic
- Aphrodisiac
- Anti- bacterial
- Anti – viral
- Antiseptic
- Anti-inflammatory
- Blood tonic
- Cleansing

5) Olive oil



Kingdom	:	Green Plants
Family	:	Oleaceae - ash, privet, lilac and olives
Genus	:	Olea
Species	:	Europa

Benefits of olive oil

- Boosts fertility in women.
- Eases menstrual cramps.
- Reduces the chances of infection.
- Improves the skin texture.
- Cures upset stomach.
- Treats body blemishes.
- Good for hair health.
- Joint pain.

6) Glycerin



Scientific name: Glycerol also called glycerin or glycerin, is a simple triol compound

Molecular formula: $\text{HOCH}_2\text{CHOHCH}_2\text{OH}$

Benefits of glycerin

- Hydrate the outer layer of the skin (Stratum corneum)
- Improve skin barrier function
- Provide protection against skin irritants
- Accelerate wound-healing processes
- Relieve dry skin
- May help with psoriasis

MATERIAL AND METHOD

Material:- Orange peel, cynodon dactylon, olive oil, aloe vera, vit E source, glycerin IP.

Experimental work

Material & collection

Sr. No.	Ingredient	Collection	Category
1	Aloe vera	Nootan collage of pharmacy	Anti- aging
2	Orange	Local market	Anti- oxidant
3	Olive oil	Nootan collage of pharmacy	Moisturizer
4	Cynodon Dactylon	Nootan collage of pharmacy	Anti – inflammation
5	Glycerin	Nootan collage of pharmacy	Moisturizer
6	Rose water	Local market	Tonner (Skin hydration)
7	Vit E	Local market	Moisturizer

Method of extraction of orange



Final extraction

Cold method of extraction

Step 1

All skin type needs these ingredients to be as healthy as possible. Wash the materials and peel the fruit. Wash your hands and the fruit you will be extracting oil from. Cold pressing doesn't involve chemicals for extraction, so it's important to thoroughly wash the fruit to remove bacteria. Remove the rind of the fruit with a peeler or knife and place it to the side. You may also remove the rind of the fruit with your fingers if you desire, but this can cause a greater amount of pulp and other fruit material to end up in the oils, which will need to be removed later. The greatest concentration of oils in most fruit is contained in the outer layer of the rind.

Step 2

Reuse the leftover peels. Once the fruit is peeled, you can use the leftover fruit for cooking or eating. There are a variety of uses for the leftover fruit peel, even after pressing. Rather than

composting the peel, try: Keeping the peels in a small bag and hanging it somewhere to keep the room smelling zesty. The oil in orange peel, limonene, acts as a repellent for several types of insects. Toss a few peels into the garbage disposal and give them a good grinding to freshen up the smell of your sink.

Step 3

Press the fruit peel. Use a pressing device, such as a sieve, to squeeze the fruit peel over a jar. Heavy pressure will squeeze liquid from the peel - this liquid contains the oils you're looking for. Use a fair amount of strength when pressing, but take care not to damage or break the implement you are using. You should see a small amount of oil drain from the peel after a few seconds. Cold pressing peel is quite a bit of effort for what looks to be a fairly small amount of oil. Don't get discouraged. The oil is quite potent. A garlic press is a great way of pressing small amounts of fruit peel with ease. A mortar and pestle may also be used.

Step 4

Separate the oils. Allow the liquid squeezed from the peel to stand for a few days. The oil will separate from the rest of the liquid, which can then be collected. A centrifuge can also be used to separate the oil from the rest of the liquid! A simple way of collecting the oil from the liquid is placing the liquid in the freezer. The oil will remain in its liquid form while the remainder freezes, allowing you to pour out the oil.^[3] Oil extracted this way has a small shelf life. Try to use any oil created within a 6 month period.

Step 5

Apply when needed. Bottle the oil that you extract from the liquid for later use. Dab a little on your skin for a fresh smell, or use some in cooking recipes that require essential oil. Remember that the oil is very concentrate – a little will go a long way.

Method of extraction of cynodon dactylon



Final extraction



Procedure of extraction

Dactylon (Whole plant) were collected from the nootan college of pharmacy kavtemahankal, India. Collected plants were shade dried and powdered. For large-scale preparation, 1 kg of powdered plant materials of the whole plant was soaked in 10 l of water and heated at 60 °C for 20 min. A crude yellow aqueous extract was obtained by filtering out the residues and the filtrate was diluted with 100% pure olive oil in the ratio of 1:4. A copious quantity of gel like precipitate formed immediately after addition of olive oil. Collected and stored for the further use of preparation.

Formulation table

Sr. no.	Ingredient	Part used	Standard formula %	Formulation 1 (50 ml)	Formulation 2 (75 ml)
1	Orange	Peel extract	10%	2.5 ml	5 ml
2	Durva	Leaf extract	5%	1.5ml	3 ml
3	Alovera		10%	2.5 ml	5 ml
4	Vit E		1.6 gm	0.4 ml	0.8 ml
5	Rose water		qs	qs	qs

The Emulsion (o/w) was prepared according to the given formula oily component of the herbal serum are olive oil, glycerin, vitamin e source etc first extract of orange peel and cyanodondactylon prepared submitted in container. And and stored in well placed Then the orange peel ex tract and cynodon extract vitamin e add together to form a uniform solution At the same time waterphasalso prepared by mixing aloe vera rose water mixed Finally finally the oil phase is added to the liquid phase by drops under the vigorous steering or Mechanical vibration at 250 rpm or mechanical steering to obtain oil in water based by basic emulsion.

Evaluation parameter

Sr. no.	Name of test or parameters	Value
1	Ph meter	6
2	spread ability	5 to 6 cm
3	Viscosity	13530 PAS

1) Stability study

1) Appearance: Greenish

2) Phase Separation: Nil

3) Homogeneity: Excellent

4) Cyclical Temperature :

A) Freeze Temperature: Unstable Stable

B) Room Temperature: Mostly Unstable

2) **Storage condition of herbal face serum:** Cool and Dry place avoid the direct sunlight
(Use amber color container)

RESULT AND DISCUSSION**Physical evaluation**

Sr. no.	Physical property	Formulation 1	Formulation 2
1	Colour	Greenish yellow	Greenish yellow
2	Odor	Characteristic	Characteristic
3	Texture	Smooth liquid	Smooth liquid
4	Homogeneity	Excellent	Excellent
5	Wash ability	Washable	Washable
6	Irritancy	Nil	Nil

CONCLUSION

The research goal was to create a serum that would nourish and make the skin on the face shine. Cynodon dactylon extract, Orange peel extract, oil, and aloe Vera are the key components of the serum. Aloe vera gel from the inner middle area of the leaf frequently has an excellent effect on acne, pimples, and other skin issues, as well as burns caused by heat and sun exposure and radiation dermatitis. Aloe Vera is a great source of vitamins and minerals that have real moisturizing power and anti-aging properties to maintain youthful, healthy skin. Orange peel extract also has anti-oxidant properties. Cynodon dactylon it give a cooling effect, which improves the quality of face serum. A good pH was discovered. It was simple to wipe out and left no residue behind. The gel promotes cell development and, by

itself, aids in the healing of damaged skin. This serum will thus be used to treat skin related issues.

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