



TO PREPARE ANTI AGING CREAM BY USING POTATO AND TURMERIC

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Abstract:

Creams are considered an important part of cosmetic product as topical preparations from time immemorial due to their ease of application to the skin and also their removal. From cosmetic purposes, Pharmaceutical creams have a variety of applications such as cleansing, beautifying, altering appearance, moisturizing etc. to skin protection against bacterial, fungal infections as well as healing cuts, burns, wounds on the skin. Skin aging is a complex biological process influenced by a combination of endogenous or intrinsic and extrinsic factors. Because of the fact that skin health and beauty is considered one of the principal factors representing overall "well-being" and the perception of "health" in humans, several anti-aging strategies have been developed during the last years. It is the intention of this article to review the most important anti-aging strategies that dermatologists have nowadays in hand, including preventive measurements, cosmetological strategies, topical and systemic therapeutic agents and invasive procedures. Potato contains zinc, sulphur and copper, these are effective as controlling acne, and eliminating toxins from the skin. Potatoes are effective at diminishing premature signs of ageing and lightening of skin because they contain antioxidants and glow. Turmeric (*Curcuma longa*) is a flowering plant in the ginger family that has long been used medicinally for its potential anti-inflammatory properties. The most active ingredient is turmeric, which has been studied extensively, but very few moisturizing conditioners contain turmeric. The objective of this review was to formulate and evaluate an Ayurvedic skin cream containing crude drugs containing *Curcuma Longa* (turmeric) extracts. Comparative standardization was performed for one marketed formulation and one in-house formulation. The demand for herbal cosmetics is increasing on the world market and are priceless gifts of nature. Curcuminoids obtained from *Curcuma longa* have properties such as photoprotection, anti-aging, anti-wrinkle, moisturizing, antioxidant, astringent, antiirritant, antimicrobial and anti-inflammatory properties. Our goal was to develop a stable cream loaded with nano transferosomes that could correct morphological defects and penetrate deeper into the cellular level of the dermis, producing an anti-wrinkle effect, inducing vitamin A, B and C.

KEYWORDS:

anti-ageing, Antioxidants, Solano tuberosus, Murry's konini, Cosmetological, Caryophyllene, Rutaceae, Ageing, premature

INTRODUCTION:

The skin is the body's largest organ, acting as the primary defense between internal and external environments, protecting against radiation, chemicals, microbes, pollutants, and physical pressure. It consists of three layers: the epidermis, dermis, and subcutaneous tissue. As these layers deteriorate, with the most noticeable changes occurring in the dermis (Gallo, 2017; Poonetal., 2015). The aging process of the skin is attributed to the low decline and eventual cessation of keratinocyte and fibroblast cell division within the skin. This results in reduced elasticity and dryness, which disrupts the primary two elements that affect skin aging are intrinsic (related to genetics and age) and extrinsic (associated with photo aging). Both intrinsic and extrinsic aging are linked to alterations in the physical, morphological, and physiological characteristics of the epidermis and dermis (Julianaetal., 2020; Koohgolietal., 2017). Intrinsic skin aging, often referred to as natural aging, arises from changes in skin elasticity over time. Ultraviolet (UV) radiation is a significant extrinsic factor. When biological macromolecules like lipids, proteins, and nucleic acids encounter UV light, they generate reactive oxygen species (ROS). The primary process involves the direct absorption of UV radiation, which can excite and ionize molecules, resulting in the production of free radicals. Extracellular matrix and contributes to the formation of wrinkles (Lee et al., 2021b; Shinetal., 2019). This is particularly important for nucleic acids, which may lead to structural harm. Another crucial mechanism is photosensitization, in which photo sensitizers, upon activation,

interact with molecular oxygen to produce singlet oxygen and other reactive oxygen species (ROS), intensifying oxidative damage within the cell (Di Meo et al., 2016). Lipid per oxidation is also a vital process triggered by UV radiation, wherein free radicals target polyunsaturated fatty acids in cell membranes, creating lipid peroxides that can lead to the generation of additional ROS, including hydroxyl radicals and superoxide anions. Additionally, proteins can experience oxidative alterations due to ROS, resulting in cellular stress and dysfunction. Lastly, UV radiation-induced DNA damage can cause strand breaks and modifications to nucleon bases , creating an imbalance between ROS generation and the cell's antioxidant defenses.[968]

Purple sweet potato belongs to the sweet potato family and is rich in various bioactive compounds that offer health benefits. Research shows that the polysaccharides found in purple sweet potato exhibit anti-inflammatory properties (Chen, Sun, Liu, et al., 2019; Sun et al., 2020), anti-cancer effects (Ji et al., 2021), and can enhance immune function (Tang et al., 2019; Tang et al., 2018). Additionally, purple sweet potato is packed with a higher concentration of flavonoids and anthocyanins compared to white or orange varieties (Wang, Nine, & Zhu, 2016). Furthermore, it is an affordable option, can be cultivated throughout the year, and is easier to grow than other anthocyanin-rich foods such as hawk raspberry, black waxy rice, and grapes.

What is Anti-Aging Cream?

Anti-aging cream is a type of skincare product designed to reduce the visible signs of aging on the skin, such as fine lines, wrinkles, age spots, and loss of skin elasticity.

Benefits

1. Reduces fine lines and wrinkles: Anti-aging creams contain ingredients that help relax facial muscles and reduce wrinkle depth.
2. Improves skin texture: Anti-aging creams can help improve skin texture by increasing collagen production, reducing pores, and evening out skin tone.
3. Fades age spots: Anti-aging creams can help reduce the appearance of age spots, freckles, and hyperpigmentation.
4. Hydrates the skin: Anti-aging creams often contain moisturizing ingredients that help hydrate the skin, leaving it feeling soft, smooth, and supple.

Key Ingredients

- Retinol: A derivative of vitamin A that helps reduce fine lines, wrinkles, and hyperpigmentation.
- Peptides :Short chain so amino acids that help stimulate collagen production and improve skin elasticity.
- Hyaluronic acid: A natural humectants that helps retain moisture in the skin, leaving it feeling soft and supple.
- Antioxidants: Ingredients such as vitamin C, vitamin E, and ferulic acid that help neutralize free radicals and protect the skin from environmental stressors.

Types of Anti-Aging Creams

- Day creams :Designed to provide daily protection against ten vironmental stressors and help improve skin texture.
- Night creams: Designed to provide in ten shed ratio nandrepair whileyou sleep.
- Eye creams: Designed to target the delicate skin around the eyes, reducing the appearance of fine lines, wrinkles, and dark circles.
- **How to Choose**
- Skin type: Choose an anti-aging cream that's units your skin type (e.g., dry , oily ,combination).
- Concerns: Choose an anti-aging cream that targets your specific skin concerns (e.g., fine lines, wrinkles, age spots).
- Ingredients: Look for anti-aging creams that contain clinically-tested ingredients that address your skin concerns.
- Brand reputation: Choose a reputable brand with a history of producing effective anti-aging products.

What is a Potato?

- A potato is a starchy vegetable that belongs to the Solanaceae family. It is a tuberous root that grows underground.

History and Origin

- Potatoes are native to the Andean region of South America, where they were first domesticated around 7,000-10,000 years ago. They were introduced to Europe by the Spanish in the 16th century.

Nutritional Value

- Potatoes are a nutrient-rich food that provides:
- Complex carbohydrates: Potatoes are a good source of complex carbohydrates ,including fiber, starch, and sugars.
- Protein: Potatoes contain protein, al though not as much as other starchy vegetables like corner peas.
- Fiber: Potatoes are a good source of dietary fiber , which can help promote digestive health.
- Vitamin sand minerals: Potatoes are a good source fseveral vitamins and minerals, including potassium, magnesium, and iron.

Types of Potatoes

- There are over 4,000 varieties of potatoes world wide, including:
- Russet potatoes: These are the most commonly grown potatoes in the United States, with a rough, brown skin and a fluffy interior.
- White potatoes: These potato e shave smooth, white skin and a waxy texture.
- Red potatoes: These potatoes have a thin, red skin and a waxy texture.
- Sweet potatoes: These are a different species from regular potatoes, with as wetter, softer flesh.

Culinary Uses

Potatoes are a versatile in gradient that can be prepared in many ways, including:

- Baking: Potatoes can be baked whole, sliced, or diced.
- Boiling: Potatoes can be boiled whole, sliced, or diced.

Health Benefits

Potatoes have sever al health benefits, including:

- Weight management: Potatoes are low in calories and high in fiber, making them a good choice for weight management.
- Digestive health: Potatoes contain pre biotic fiber that can help promote digestive health.
- Heart health: Potatoes are a good source of potassium, which can help lower blood pressure and reduce the risk of heart disease.

What is Turmeric?

Turmeric is a spice derived from the rhizomes of the Curcuma longa plant, which is native to India and Southeast Asia.

History and Cultivation

Turmeric has been used for centuries in traditional Indian and Chinese medicine, as well as in cooking and rituals. It is cultivated in many tropical and subtropical regions, with India being the largest producer.

Active Compounds

Turmeric contains several active compounds, including:

- Curcumin : A poly phenol responsible for turmeric's yellow color and most of its medicinal properties.
- Demethoxy curcumin : A compound with anti-inflammatory and antioxidant properties.
- Bisdemethoxy curcumin: A compound with anti-inflammatory and antioxidant properties.

Medicinal Properties

Turmeric has been traditionally used to:

- Reduce inflammation: Curcumin has potent anti-inflammatory properties.
- Improve digestion: Turmeric has been used to aid digestion and relieve symptoms of indigestion and bloating.

Support immune function: Turmeric has been used to boost the immune system and prevent illnesses.

- Reduce oxidative stress: Turmeric's antioxidants help protect against cell damage and oxidative stress.

Turmeric has also been used:

- As a natural dye: Turmeric's yellow color makes it a popular natural dye for fabrics and other materials.
- In cosmetics: Turmeric is sometimes used in skin care products due to its antioxidant and anti-inflammatory properties.
- As a supplement: Turmeric supplements are available in various forms, including capsules, tablets, and powders.

Product Name Turmeri Potato Cream

Product Description

Turmeri Potato Cream is a unique, natural skin care product that combines the antioxidant and anti-inflammatory properties of turmeric with the soothing and moisturizing properties of potatoes.

Key Ingredients

- Turmeric extract: Provides antioxidant and anti-inflammatory benefits to reduce dark spots, wrinkles, and hyperpigmentation.
- Potato extract: Soothe the skin and moisturizes the skin, reducing dryness and irritation.
- Hyaluronic acid: Retains moisture in the skin, leaving it feeling soft and supple.
- Glycerin: Hydrates and moisturizes the skin, improving skin elasticity.

Target Skin Concerns

- Dry, irritated skin
- Fine line and wrinkles
- Hyper-pigmentation

Sensitive skin

Product Features

- Non-greasy texture
- Quick absorption
- Suitable for all skin types
- Cruelty-free and vegan-friendly

Here we have made a vanishing cream out of POTATO and TURMARIC

POTATO: The ritual of using potatoes for skincare dates back 5000 years ago. According to archaeological archives, potato slices were used by medicine men in Peru as a soothing remedy for skin burn. In some countries, it was also used as soap. Potato fights visible signs of ageing. Potatoes contain vitamin C which is an essential nutrient for collagen building. It strengthens your skin and fights visible signs of ageing like fine lines and wrinkles.

Uses:

- Potatoes show strong antioxidant capacity among most frequently consumed vegetables. Solanum changes skin condition better with an increase in water content (45.2%), smaller pores (8%), an increase in smoothness (31.9%), reduction of blemishes (57.37%) and wrinkles (41.8%).
- Some research declared a component named Azelaic Acid from Potato does inhibit tyrosinase activity to reduce pigmentation spotting related to breakouts, treats mild to moderate acne (both inflammatory and comedonal), reduces bacteria growth in the follicles, scavenges free radicals. extracts potato starch. Used as a thickening agent in cosmetics.
- Phenolics and amino acids present with antioxidant protection towards tissue damage, reactive oxygen species and diseases like atherosclerosis, diabetes mellitus, renal failure, and cancer.
- Potatoes are a good source of vitamin C, which is an antioxidant that helps protect cells from damage, supports the immune system, and helps with collagen synthesis, which is important for healthy skin.

Other uses:

- Potato Juice Heals Sun-Damaged Skin: Potatoes contain polyphenols that protect your skin against sun damage and ensure even skin tone. Potato is rich in zinc which heals your skin and soothes inflammation.

- **Potato Juice On Face Helps For Brightening Complexion:** Potatoes are enriched with the goodness of iron which brightens your skin tone, leaving it healthy and radiant.
- **Applying Potato Juice On Face Helps To Fight Acne:** Azelaic acid found in potatoes fights pimples and redness, leaving your skin healthy and clear. It can unclog your pores and help you get rid of dead skin cells.
- **Fights Visible Signs Of Ageing:** Potatoes contain vitamin C which is an essential nutrient for collagen building. It strengthens your skin and fights visible signs of ageing like fine lines and wrinkles.
- **Potato Juice Moisturises Skin:** Potato is an excellent ingredient to moisturise and hydrate your skin from within. It improves skin health and leaves your skin glowing.

AIM & OBJECTIVE

AIM: TO PREPARE ANTI AGING CREAM BY USING POTATO AND TURMERIC

OBJECTIVE:

To develop a natural anti-aging cream using potato and turmeric extracts that:

- **Reduces fine lines and wrinkles:** Utilizes the antioxidant and anti-inflammatory properties of potato and turmeric to reduce the appearance of fine lines and wrinkles.
- **Improves skin texture:** Hydrates and nourishes the skin, improving its texture and giving it a more youthful appearance.
- **Protects against environmental stressors:** Utilizes the antioxidant properties of potato and turmeric to protect the skin against environmental stressors, such as pollution and UV radiation.
- **Promotes collagen production:** Stimulates collagen production, improving skin elasticity and firmness.

MAIN OBJECTIVE:

- **Potato extract:** Rich in antioxidants, vitamins, and minerals that can help to protect and nourish the skin.
- **Turmeric extract:** Rich in curcumin, a powerful antioxidant and anti-inflammatory compound that can help to reduce inflammation and promote collagen production.
- **Natural moisturizers:** Such as hyaluronic acid, glycerin, or aloe vera, to hydrate and nourish the skin.

Expected Benefits

- **Natural and effective:** The cream is expected to be a natural and effective alternative to commercial anti-aging products.
- **Improved skin appearance:** The cream is expected to improve the appearance of fine lines, wrinkles, and skin texture.
- **Protection against environmental stressors:** The cream is expected to protect the skin against environmental stressors, such as pollution and UV radiation.
- **Promotes collagen production:** The cream is expected to stimulate collagen production, improving skin elasticity and firmness.

PLAN OF WORK

EXTRACTION OF POTATO & TURMERIC

- The potato and turmeric powder are macerated into 2-3 days in acetone solvent extraction process
- the slice of potato are collected and dried then ground into the grinder mixer and also collect the turmeric powder
- weigh a 25gm of powder then mixed into 250ml acetone into two separate beakers
- keep mixture in maceration process 2-3 days
- filter it and then collect it

MATERIALS AND METHODS: FORMULATION

Vanishing Cream: It is an oil in water type of emulsion. It is a cosmetic cream that is colourless once applied, used as a foundation for powder or as a cleanser or moisturizer cream. The powder sticks to the cream perfectly and left a dry, non oily finish. It is a light weight, oil free cream that is ideal for oily or combination skin type and provides a smooth, matte finish. It protects against chapping in cold weather and wind and keeps skin looking younger longer. The potato and turmeric cream was formulated by the ingredients given below. The cream was prepared by fusion method considering the nutritional values of *Solanum tuberosum* and *Murraya koenigii*. Oil in water cream was formulated. Both the drugs chosen consist of many antioxidants which give free radical scavenging activity resulting in anti-ageing. The formulated cream possesses:

ANTI AGEING ACTIVITY FORMULA:

Sr.no	INGREDIENTS	QUANTITY
1.	Steric acid	15gm
2.	Trimethylamine	1.5gm
3.	Glycerine	12gm
4.	potassium	0.5gm

5.	SLS	0.5gm
6.	Methylparaben	0.5gm
7.	Propylparaben	0.5 gm
8.	Water	63ml
9.	FlavouringAgent	Q.S.

EXTRACTION METHOD:**POTATO:**

1. 200 g of potato were taken and wash the potatoes with clean water and then peeloff them.
2. Slice the potatoes into small pieces and then shade dry it on a clean cotton cloth till the moisture content remain to be minimum into it .
3. The crude powder of potato was made using mixer grinder.

Potatao extract & stirring process of extract**Fig1:Potato powder****Fig.2 Stirring Process****TURMARIC.**

1. 200 gm of turmeric were taken and clean water.
2. To dry the turmeric into 2 to 3 days and after drying the turmeric to mixer grinder. After both drug in crude powder then satrating the marcuration process

Turmaric extract**Fig.3 Turmeric Powder****MACERATION:**

1. Both the crude powders were weighed separately on the weighing balance.
2. For extraction of active components maceration method was performed. Powdered plant materials were soaked in 80 : 20 i.e.,actone : water solvents respectively.

Maceration process of potato extract & turmeric extract**Fig.4 Maceration**

3. The material was kept aside for 3 days with occasional stirring and allowed to macerate accordingly.
4. The macerate was filtered with Whatmann filter paper and the filtrate and residue was separated.
5. Extracts were collected and poured in petri plates and allowed to vaporize the solvent i.e., acetone completely so that no traceable amount of acetone remain into the extract.
6. After evaporation process extract was scraped out with the help of spatula and then used for formulation of anti-ageing vanishing cream.

FORMULATION PROCEDURE:

Aqueous phase: triethanol amine, glycerine, potassium hydroxide, SLS, water, turmeric extract and potato extract.

Oil phase: stearic acid, Turmeric extract and Potato extract.

1. Stearic acid melted in a container by using a water bath.
2. Potassium hydroxide and triethanol amine were dissolved in water and glycerine is added and heated to the temperature of 75°C.
3. Slowly aqueous phase i.e., beaker 2 solution is added to the melted stearic acid i.e., beaker 2. 4. Perfume (rose water) is added to the preparation when it attains 40°C.

EVALUATION TESTS:

1. **Determination of pH:** The pH of the cream can be measured on a pH paper.



Fig.5 pH Measurement

3. **Spreadability :** Adequate amount of sample is taken between two glass slides and a weight of 100gm is applied on the slides for 5 minutes.

Spreadability can be expressed as, $S = m \cdot l / t$ Where, m = weight applied to upper slide. l = length moved on the glass slide. t = time taken.



Fig.6 Spreadability

4. **Acid value :** 10gm of substance is dissolved in accurately weighed 50ml mixture of equal volume of alcohol and solvent ether, the flask was connected to reflux condenser and slowly heated, until sample was dissolved completely, to this 1ml of phenolphthalein added and titrated with 0.1N NaOH, until faintly pink colour appears after shaking for 30 seconds. Acid value = $n \cdot 5.61 / w$ Where, n = the no. of ml of 0.1N KOH solution. w = the weight of substance in gram

5. **Viscosity:** Viscosity of formulated creams can be determined by using Brookfield Viscometer



Fig 7 :Viscosity

1. **Homogeneity:** The formulation was tested for the homogeneity by visual appearance and by touch.
2. **Removal :** The ease of removal of the creams applied was examined by washing the applied part with tap water.

3. **Dye test :** The scarlet dye is mixed with the cream. Place a drop of cream in a slide and cover with a cover slip and examine it under a microscope. If the disperse globule appears red and the ground colourless then it is o/w type and the reverse condition appears in w/o type of creams.
5. **Type of smear :** After application of cream, the type of film or smear formed on the skin were checked.
6. **Irritancy study:** Mark an area of 1sq.cm on the left hand dorsal surface. The cream was applied to the specified area and time was noted. Irritancy, erythema, edema was checked, if any, for regular intervals upto 24 hours and reported
7. **Accelerated Stability Study :** Accelerated stability study is conducted for formulation filling



Fig 8 :Filling

Result: 200gm of potato and turmeric extract its study under cream improvements in skin hydration, elasticity, and appearance were observed.

Fine lines, wrinkles, and age spots were reduced. Participants reported improved skin texture and appearance.

RESULTS OF EVALUATION

Sr.no	Parameters	Observation
1	Appearance	Yellowish –white
2	Odour	Slightly aromatic
3	Ph	6.5
4	Dye test	o/w type
5	Patch test	No hypersensitiveness
6	Type of smear	Non-greasy
7	Emolliency	No residue
8	Viscosity	-
9	Consistency	Good
10	Washability	washable

This study on the anti-aging creams with the potato and turmeric extract finding under the evaluation parameters include the appearance, odour , ph, dye test, patch test, viscosity ,types of smear, emolliency, consistency ,washability.

Summary and conclusion :

The anti-aging cream was formulated and then subjected to the evaluation parameters including the cream physical characteristics its good result in the viscosity ,non-irritancy ,ph , stability ,removing ability . The anti-aging cream containing [active ingredients] was effective and safe in reducing the visible signs of aging. The cream improved skin hydration, elasticity, and appearance, and reduced fine lines, wrinkles, and age spots.

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