



Development of a Polyherbal Nutraceutical Chewable Tablet for Enhancing Skin Radiance and Hair Strength

Rishu Kumar¹, Anjali Sahu¹, Gyanesh Kumar Sahu^{2*} and Twinkle Goyal²

¹Rungta Institute of Pharmaceutical Sciences Kohka, Bhilai, India

²Rungta Institute of Pharmaceutical Sciences and Research Kohka, Bhilai, India

***Corresponding Author:** Gyanesh Kumar Sahu, Professor and Dean, Rungta Institute of Pharmaceutical Sciences and Research, Kohka, Kurud, Bhilai, India.

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Gyanesh Kumar Sahu, et al.

Abstract

It examines the composition, advantages, and possible uses of chewable orange, kiwi, and amla pills as natural supplements to support the health of skin and hair. Vitamin C, antioxidants, and other bioactive chemicals found in abundance in orange, kiwi, and amla are essential for enhancing skin suppleness, lowering aging symptoms, and stimulating hair development. For consumers looking for natural and efficient beauty supplements, the chewable tablet format provides a practical and palatable way to provide essential nutrients. These fruits' vitamin C promotes the production of collagen, while their flavonoids and polyphenols offer antioxidant defense against environmental contaminants, UV rays, and oxidative stress. While amla helps prevent premature greying, promote circulation to the scalp, and lessen hair loss, kiwi improves skin hydration, maintains head good health, and increases hair. These chewable pills show promise in meeting the increasing demand from consumers for nutritional supplements in the cosmetics sector, despite issues with flavor masking and the durability of the pharmaceutical components. According to the research, chewable pills of orange, kiwi, and amla may offer a natural and efficient approach to improve the health of skin and hair, giving customers a useful way to enhance their appearance and well-being from the inside out.

Keywords: Composition; Chewable; Vitamin-C; Masking; Appearance

Introduction

Numerous dietary additives, many of which contain botanical substances with medicinal qualities, have been developed in an effort to promote healthy skin and hair. Polyherbal formulations have become more popular because of their possible synergistic effects in response to the growing desire for natural and holistic treatments. For those looking to improve both the wellness and the look of their hair and scalp, polyherbal sublingual tablets—which blend many based on plants ingredients—offer a handy and tasty alternative. The biggest organ in the body, the skin acts as an extra layer of defence and is a reflection of interior health. In a similar vein, hair health reflects the body's endocrine and nutritional balance in addition to being a sign of personal hygiene. Common skin and hair issues like flakes, thirst, acne, premature aging, and hair loss have prompted research into topical and inside treatments.

Although external remedies like lotions, creams, and serums have been utilized extensively, internal supplementation—especially with herbal ingredients—has drawn interest due to its capacity to address the underlying causes of these issues.

An antioxidant anti-inflammatory, antibacterial, and rejuvenating benefits have been investigated for polyherbal preparations, which integrate the advantageous qualities of many plants. kiwi, orange, amla are among the ingredients that have long been utilized in traditional medicine to support healthy skin and hair growth. Flavonoids in general alkaline substances, antioxidants, and necessary fatty acids are among the bioactive substances found in these herbs that are thought to support healthy skin and hair qualities and nourish the body from the inside out. Compared to traditional pills or capsules, chewable tablets provide a number of benefits as

a dose type. Their appealing quality encourages frequent usage, since they are convenient to swallow, especially for those who have trouble swallowing pills. Furthermore, because chewable tablets break down in the alimentary tract, they can be absorbed more quickly, which may increase the active components' bioavailability. Our primary ingredients in chewable tablets are kiwi, orange, and amla. Each of these ingredients has unique pharmacological qualities, but they all have vitamin C enrichment, which helps to increase collagen, improve skin texture and tone, encourage hair growth, and lessen hair loss.

These ingredients—kiwi, orange, and amla—have been used in the preparation of our polyherbal chewable tablet since ancient times and are also mentioned in ayurveda and other ancient texts. Each of these ingredients has unique benefits for treating different types of skin and hair issues. All of the substances were widely utilized in ancient times to cure a variety of skin and hair issues.

Role of selected drug in polyherbal chewable tablet

The Drug used in the polyherbal chewable tablet is based on their medical application.

Amla (Indian Gooseberry)

It is well known for its abundance of vitamin C and other health advantages. For millennia, Ayurvedic medicine has utilized amla to improve general health, which includes encouraging beautiful hair and radiant skin.

Key ingredient of amla

High in vitamin C

One of the best whole-food sources of vitamin C, an antioxidant which is essential for the formation of collagen, is found in amla. This keeps the skin supple and lessens wrinkles and fine lines, which are indications of aging.

Encourages hair growth

Amla improves the general condition of hair and scalp by strengthening hair follicles and reducing hair breakage. Because of the substantial vitamin C concentration, it aids in the synthesis of collagen, a protein which is essential for healthy hair development.

Detoxification

Amla aids in the body's detoxification, keeping the skin pure, radiant, and free of pollutants.



Figure 1: Amla.

Kiwi

Kiwi fruit, often called Chinese gooseberry, is used to make vitamins and minerals. It is prized for its rich biological profile, especially for its high levels of antioxidants, dietary fiber, and vitamin C. In addition to being tasty, kiwis are a nutrition wonder that promotes skin and hair healthiness as well as general health.

Key ingredient of kiwi

High in vitamin C

One of the best vegetarian sources of the antioxidant vitamin C is kiwi, which is necessary for the production of collagen, an amino acid that keeps skin supple and youthful-looking. This can encourage a healthy skin shine and lessen the visibility of wrinkles and fine lines.

- **Encourages Hydration of the Skin:** Due to their high-water content, kiwis help maintain moisturized, luscious skin. Reduced tightness and the appearance of fine wrinkles requires well-hydrated skin.
- **Increases the Production of Collagen:** Kiwi's vitamin C promotes the formation of collagen, which is necessary for the strength and structure of skin. This maintains the skin bright, minimizes drooping, and makes the skin appear firmer.
- **Encourages the Health of Hair:** By increasing the uptake of iron, which is crucial for halting hair thinning and encouraging growth, vitamin C also helps to strengthen hair. Kiwi makes hair thicker and glossier by strengthening the hair follicles.

Orange



Figure 2: Kiwi

Orange-based nutritional drinks are well-known for their high vitamin C content, along with other vital minerals and antioxidants. These chewable pills improve the general wellness of your skin and hair and are a sweet and easy way to add bright orange effects to your daily life.

Key ingredient of orange

Rich in vitamin C

One of the greatest plant-based sources of vitamin C, whose is necessary for the skin’s creation of collagen, is oranges. Collagen promotes young, radiant skin by preserving skin suppleness and lessening the visibility of horizontal lines and wrinkles.

- **Enhances Skin Health:** By promoting the repair of harm done tissues and enhancing the skin’s overall look, vitamin C found in tangerine helps to revitalize the skin and give it a natural glow.



Figure 3: Orange.

- **Enhances the Health of Hair:** By promoting the absorption of iron, vitamin C also contributes significantly to the health of hair. For hair that is healthy and strong and to stop hair loss, iron is essential.

When combined into chewable tablets, this combination may be a nutritional powerhouse that can:

- Promote collagen, brighten your complexion, and combat aging symptoms to improve the health of your skin.
- Increase hair shaft durability, enhance scalp health, and lessen dandruff to promote hair development.

Material and Methods

The selection of material in the preparation of polyherbal chewable tablet is almost used herbal constituent. The material used in the aromatic herbal agents for their flavour.

Herbal ingredients

S.no	Ingredients	Biological Name	Family	Quantity	Properties
01	Amla	<i>Phyllanthus emblica</i>	Phyllanthaceae	250 mg	Anti-acne, Anti- Wrinkle, Hair Growth.
02	Kiwi	<i>Actinidia chinensis</i>	Actinidiaceae	250 mg	Brighten Skin, Fades Dark Spots.
03	Orange	<i>Citrus x sinensis</i>	Rosaceae	250 mg	Vitamin-C enrich, Hair Shine, Brightening,

Table a

Excipients ingredients

S. no	Ingredients	Quantity	Properties
01	HPMC	50 mg	Binder
02	Talc	10 mg	Glidant, Disintegrants
03	Sucrose	140 mg	Flavouring Agents
04	Methyl Paraben	0.1%	Preservatives
05	Mannitol	200 mg	Bulking agent, Taste Modifier
06	Sodium Starch Glycolate	25 mg	Disintegrant
07	Ethanol	5 ml	Solvent
08	Microcrystalline Cellulose	200mg	Binder, Disintegrant
09	Magnesium Stearate	5 mg	Lubricant

Table b

Procedure for making polyherbal chewable tablet- (Methodology)

Select all Herbal (Aromatic) Ingredients, Like – Kiwi, Orange, Amla.

All components should be dried and ground into a powder.



Figure 4: Weighing all the Ingredients.

The excipients and herbal powder are combined.

To make a paste, combine powdered herbal components and excipients that with an adhesion solution (such as Ethanol).



Figure 5: Preparation of Dough Mass.

To create granules, run the mixture through a sieve, use an oven to dry the grains.



Figure 6: Screening the Product to make Granules.

After that, an edible tablet press equipment receives the granules and compresses them into chewable tablets.

To create tablets with a specific size and shape, compression is applied by the tablet printing machine.

The tablet is chewable form (oval in shape) that is easy to chew and swallow.



Figure 7: Punching the Tablets.

Evaluation

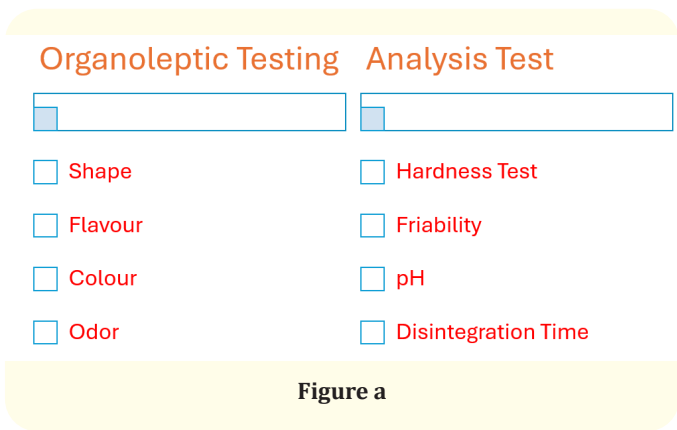


Figure a

- Weight Uniformity Test - Assures that the proper proportion of excipients and active components are present in every pill.
- Hardness Test - Verify that the tablet is both excessively soft (which might cause it to crumble) nor too firm (which could

make it harder to chew) by measuring the force needed for it to fracture or crush it.

- Friability Test - Examines the tablet’s resistance to breaking or chipping under physical handling and mechanical force.
- Disintegration Test - To make sure that the active components are efficiently released when the tablets are chewed and dissolve in the mouth.
- Stability Testing - To determine the tablets’ resistance to various environmental factors (such as sunlight and moistness, and warmth).
- Organoleptic Testing - Ensure that the chewable tablet has a flavor, look, and smell that the patient will find appropriate, which is essential for customer satisfaction.
- pH Test - Verifies that the tablet’s pH level is within the ideal range for maximum absorption when it disintegrates in saliva or a manufactured saliva solution.
- Moisture Content Test - Need to make sure there isn’t too much moisture in the pill, since this might cause the active components to degrade and compromise stability.
- Shelf-life Evaluation - Assures that the tablets’ purity and efficacy are maintained throughout time.

Result

Organoleptic testing

The appearance of chewable tablet is simple and it is easier to consumer acceptances.

S. no	Parameter	Result
01	Colour	Brown
02	Flavour	Slightly Sweet
03	Shape	Oval
04	Consistency	Solid
05	Odor	Characteristic

Table c

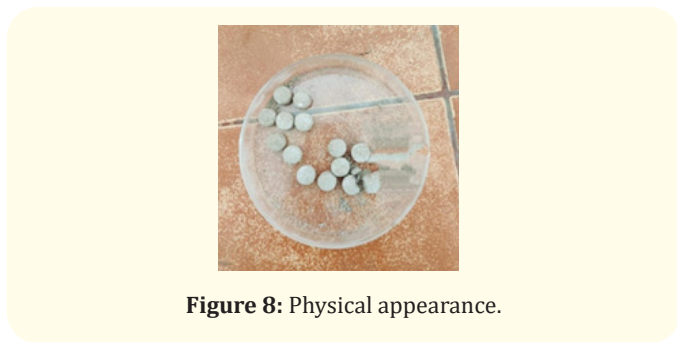


Figure 8: Physical appearance.

Analysis testing of chewable tablet

Hardness test

S. no	Sample	Hardness (kg)
1	1	5.2
2	2	6.0
3	3	4.8
4	4	5.5

Table d

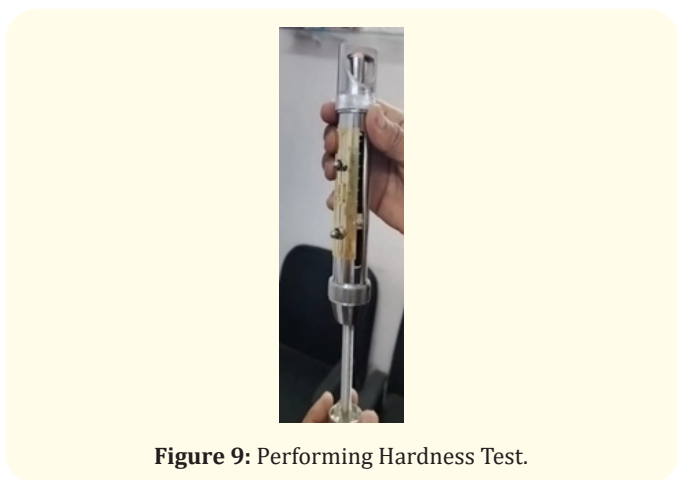


Figure 9: Performing Hardness Test.

Friability

Sample	Intial Weight	Final Weight	Friability (%)
1	5.1 gm	4.95 gm	1.95
2	5.3 gm	5.1 gm	1.60
3	5.1 gm	5.0 gm	0.90
4	5.2 gm	4.98 gm	2.1

Table e

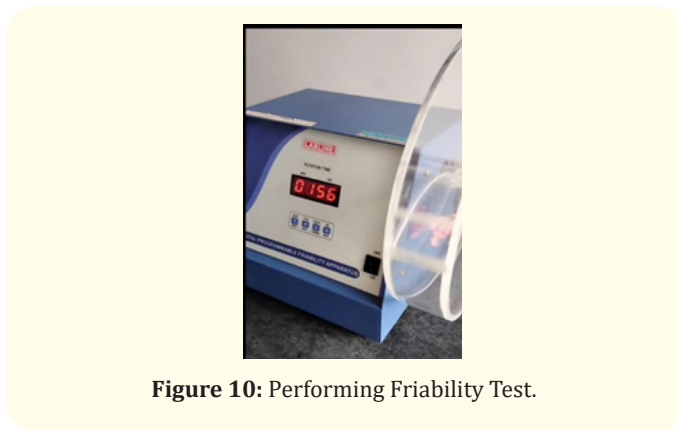


Figure 10: Performing Friability Test.

Result of analysis testing of chewable tablet

S. no	Test	Result
01	Hardness Test	5.37 kg
02	Friability	1.6%
03	Disintegration Time	15-20 min
04	Weight Variation Test	±5%
04	pH	to 7.5

Table f

Discussion

Chewable orange, kiwi, and amla pills have a lot of potential as useful supplements that promote the health of skin and hair. These fruits, which are high in vitamin C, antimicrobial agents, and other bioactive substances, offer vital nutrients that support the production of collagen, guard against oxidative stress, stimulate hair development, and improve skin moisture. Oranges’ high vitamin C content promotes the formation of collagen, which is essential for preserving the firmness and suppleness of skin as well as minimizing aging symptoms. Orange flavonoids also shield the skin from environmental contaminants, UV rays, and oxidative stress. Kiwi also contains vitamin E and omega-3 fatty acids, which boost skin hydration, strengthen and shine hair, and improve scalp health. In addition to preventing premature aging, amla, which is well-known for its high amounts of vitamin C, polyphenols, and antioxidants, also encourages hair development, lessens hair loss, and enhances scalp health. These chewable pills provide a practical and efficient option for customers looking for natural, plant-based beauty supplements, even though issues with taste masking and stability need to be resolved. These chewable pills are a great addition to the nutraceutical industry as the need for beauty-from-within products keeps rising [1-21].



Figure 11: Final Product.

Conclusion

Researchers have investigated the possibility of chewable orange, kiwi, and amla pills as strong nutraceutical supplements to improve the wellness of the skin and hair. These fruits have many advantages for skin and hair since they are naturally high in vitamin C, anti-oxidants, and other substances with biological activity. For customers looking for natural ways to enhance their beauty from the inside out, the chewable tablet form of these powerful components offers a practical and simple way to ingest them. These chewable pills offer a fresh, tasty way to get vital nutrients that help support strong, nourished hair and healthy, radiant skin. Innovative technologies may be used to solve formulation difficulties including flavor masking and bioactive ingredient preservation, guaranteeing that these products match customer expectations for stability, taste, and efficacy.

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