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Formulation and Evaluation of Basic Parameters of Herbal Toner Mist for Skin



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ABSTRACT

In today's fast world a natural rejuvenation is a necessary step for one's healthy mind and skin. The mist toner is a Natural freshener toner as well as a good cosmetic having rejuvenating and cleansing properties on the skin. The study is aimed to formulate a natural and safe herbal skin toner that has a calming, soothing, effect on the facial skin to reduce the facial irritancy and bring freshness, also to enhance the beauty. The Cucumber and Aloe vera extract used gives excellent results and safety for sensitive skin types and can be used on daily basis. The purpose behind formulating the mist is ease of spread, getting cooling and smoothening effect fast, and impart freshness to facial skin in a mild way.



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INTRODUCTION:

From the ancient days, people use naturally available resources to enhance their beauty ^[1]. It is known that cosmetics are the products used to enhance and impart beauty to the user ^[2]. In earlier days, naturally available ingredients were generally used as cosmetics, but with the passage of time and improvement in science, several chemicals came into existence that is said to impart or enhance beauty, thus used as cosmetics ^[3]. Using these chemical-based products can impart beauty for a particular time but it harms our skin when used for a long time. Many harmful effects have been noticed due to the usage of chemical-based products, thus now day's cosmetics industry mainly focuses on the preparation of herbal products ^[4]. The face mist prepared is completely chemical-free and it will also provide a soothing effect to the skin, protect the skin from sunburn, and it also has proven anti-allergic properties.

In cosmetics, skin toner or simply toner refers to a lotion or wash designed to cleanse the skin and shrink the appearance of pores, usually used on the face. It also moisturizes, protects, and refreshes the skin^[5]. Toners can be applied to the skin in different ways:

- On a cotton round. (This is the most frequently used method.)
- Spraying onto the face.
- By applying a tonic gauze facial mask—a piece of gauze is covered with toner and left on the face for a few minutes.

Types of toner

1. Skin bracers or fresheners

These are the mildest form of toners.

2. Skin tonics

These are slightly stronger and contain a small quantity of alcohol (up to 20%), water, and a humectant ingredient.

3. Acid Toners

These are a strong form of toner that typically contains alpha hydroxy acid and or beta hydroxy acid.

4. Astringents

These are the strongest form of toner and contain a high proportion of alcohol (20–60%), antiseptic ingredients, water, and a humectant ingredient.

Effects of A Toner on Skin-

In the past, skin toner was a typical product used as a second cleansing agent for removing residual makeup after regular facial cleansing or used for removing excess sebum secreted from facial skin to prepare the skin before nourishing treatment. Toners may be categorized into alcohol-based or non-alcohol-based toners for various skin types such as oily skin, sensitive skin, or combination skin [6]. Nowadays, the diversity and prevalence of the products cause skin toners to be utilized more as cosmeceutical products with several purposes; for example, rehydrating skin, balancing skin pH, tightening skin pores, relieving irritation, and also antiseptics.

Advantage of mist formulation:

Transdermal spray (TS) is believed to have more superiority over the conventional TDD systems in the light of its safety, and tolerability [7]. As compared to conventional TDD systems (patches, gel, and ointment), TS is readily available for application, provides flexible drug dosage delivery, and reduces the occurrence of skin irritation and the patients need not clean their hands after the application [7, 11,10]. Because of volatile solvent content, the TS system creates a fast-drying and non-occlusive layer on the skin after its application and helps rapid drug permeation through the skin [8,11].

Moreover, Advantages of spray formulations are:

1. Application of the toner is much easier than any other form and uniform all over the face.
2. fine mist particles help good penetration with some pressure directly into the pores of the skin.
3. The hydrolysis or any chemical reaction can be avoided with the formulation in spray form.
4. No direct contact or contamination can occur when the formulation is in spray form.
5. Rapid action with better efficacy, safety, and design can be provided with this form.

Mechanism of Spray/Mist Action:

The mechanism of action of the face spray toner can be explained as follows:

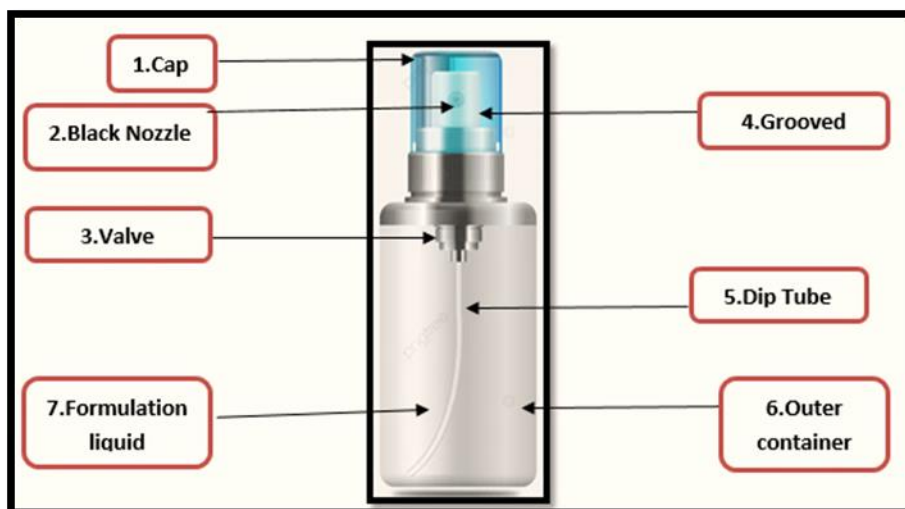


Fig. 1: Design of a Spray

Mechanism of action of the spray formulation:

When the button on the top of the spray bottle is pressed, it pumps the grooved button. This pumping action forces the air from the nozzle to the dip tube. Now there is a drop in the pressure of top of tube due to pressing the top button. After this difference pressure falls in the tube and the liquid is forced up from the tube. The liquid now leaves the nozzle through the actuator as small mist droplets due to pressure and applied on skin through force penetrating inside skin.

MATERIALS AND METHODS:

Table No. 1: Ingredients used in a topical spray formulation


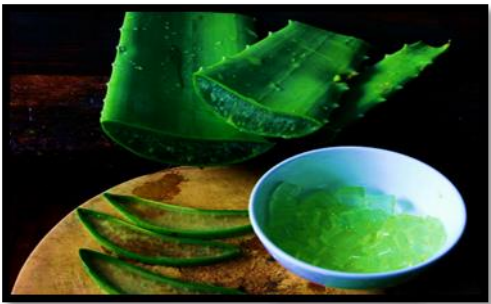


Sr. No.	Name of ingredient	Image	Active constituent	Use/purpose
1.	Cucumber Extract		Ascorbic acid (vitamin C) and caffeic acid	Smoothing of the skin and antioxidant action.
2.	Aloe vera extract		Water (98%) and polysaccharides, including pectin, cellulose, hemicellulose, glucomannan, and acemannan	Prevents and treats acne and dry skin, antioxidant effect, cooling effect, hydration of the skin.
3.	Honey		Fructose	Cleansing action on face
4.	Rosewater		Phenyl ethanol, linalool, citronellol, nerol, geraniol.	Flavoring agent and mild astringent effect on pores to avoid dirty pores on the skin.
5.	Distilled water	-	-	vehicle

Table No. 2: Formulation table of topical spray

Sr.no	Ingredients	Formula	Role of used ingredient
1.	Cucumber extract	10%	Rejuvenation of skin
2.	Aloe vera extract	5%	
3.	Rosewater	QS	Astringent
4.	HONEY	5%	Cleansing property

Formulation Pics:

1. Picture of formulation on the day of manufacturing.



Fig.2 Formulation picture

2. Picture of formulation after 1 month



Fig .3 Formulation picture after 1 month

3. Picture of formulation after three months.



Fig.4 Formulation picture after 3 months.

The interpretation of results on hand-



Fig .5 a) Before application of Toner



b) After application of toner

THE FORMULATION OF THE PRODUCT:

A. Extraction of an active constituent from crude drug using hydroalcoholic solution

B. Preparation of final spray:^[12]

The extracts which were prepared from the crude drugs used like aloe vera and cucumber were mixed together in the hydroalcoholic solution of 5% v/v. This mixture was boiled and agitated in a proper way to form a uniform mixture. Now the rose water extract was added as a flavouring agent in the mixture to impart pleasant smell and mixed. Once the homogenous mixture is formed, now the formulation was filled in the spray bottle and the stability was to be checked for a specified time.

Container and storage: To be stored in a well-closed spray container at room temperature.

Direction to use:

1. Spray some mist on your clean face or hands.
2. Allow the spray some time to remain as it is on the face or surface of hands.
3. Wipe out the spray with soft cotton or cloth.
4. Use the toner twice a day for better skin rejuvenating results.

Methods for evaluation of various physical Parameters:

1.pH-

The formulation 25 ml was taken in a beaker with graduations and now the calibrated pH meter was made stand in the formulation for some time and reading was recorded.

2.Surface tension –

The formulation was transferred in the stalagmometer and the surface tension was recorded.

3.Viscosity-

Brookfield viscometer was used to measure the viscosity of the formulation. The viscosity of water and the formulation was recorded in centipoise.

4.Skin irritation-

Small amount of the mist toner was sprayed on left hand dorsal skin and kept for some time, result was found non-irritant on the skin.

5.Stickiness-

The mist particles were not found to be much sticky in nature.

6.Skin conditioning-

The appearance of the skin after application of the mist was seen to be smooth, hydrated and supple.

7.Temperature variations-

The formulation was exposed to different temperatures at 45° C and -10° C for 3 months to check the stability.

8.Light Exposure-

The product is exposed to direct sunlight in its original packaging to see any discoloration of formulation occurs. No discoloration was seen.

RESULTS AND DISCUSSION:

The final formulation was subjected to various physicochemical tests. All the tests were performed according to every test standard procedure. All the results were recorded and found within the standard ranges. The pH, surface tension, viscosity, stickiness and stability were studied thoroughly and were within the range. No any discoloration was found after light exposure to the formulation. The formulation was also effective to produce conditioning on the skin and non-irritant in nature. At last the removability of mist was found to be easily removable.

Table No. 3: Evaluation of mist toner

Sr. No.	Physical character	Description	Result
1.	pH	pH is recorded by using pH meter	5.6
2.	Surface tension	Surface tension is recorded using stalagmometer.	53.5 dyne/cm ²
3.	Viscosity	Viscosity is measured by using ostwalds viscometer	1.6 CP
4.	Skin irritation	When applied on skin causes irritation or not	Non-irritable
5.	Stickiness	Does particles of mist stick or not	Not much sticky
6.	Skin conditioning	The appearance of skin after application of mist.	The skin was moisturized, soft, and supple
7.	Temperature variations	The product is stored at 45° C and -10° C for 3 months to check stability	The product is stable at extreme temperatures with room temperature.
8.	Light exposure testing	Product is placed in direct sunlight in its packaging to check any discoloration occurs.	No discoloration/physical/chemical changes seen
9.	Removable	The product is washable from skin or not.	Easy removable

CONCLUSION:

The results from the spray tonner formulation were very satisfactory. All the ingredients were procured fresh from the local market and they were economical as well as useful top. The purpose behind the toner formulation was to achieve the cooling and toning effect on the skin was found to be satisfactory. Similarly, the intention behind formulating it in the mist form was to ease in carrying the formulation and application whenever and wherever needed. And the studied formulation proved to be satisfactory from that perspective as well. After application, there was no irritability, rashes but, some cleansing effect was observed. It is suggested that the prepared formulation is physiochemically stable, and possessed characteristics of a standard cosmeceuticals' formulation for skincare. The spray formulation gave a more effective form to this formulation because spraying smaller particles on the skin with a certain amount of force made the formulation penetrate the small pores of the skin in a better way than any other form like gel or lotion.

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DISCLOSURE OF CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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