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EVALUATION OF SKIN-RADIANT TONERS FORMULATED FROM *CUCUMIS SATIVA & ALOE INDICA ROYLE*

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ABSTRACT

In this research of the serum, extracts of *Cucumis sativus* (Cucumber) and *Aloe indica Royle* (Aloe Vera) were combined with a salicylic acid to produce a skin toner. Toners can naturally remove oil and dirt while also hydrating the skin and reducing the appearance of pores and temporarily tightening the skin. Skin toner is regularly applied to the face after thorough cleansing to remove any lingering makeup or extra sebum and to prime the skin for nourishing treatments. Due to three layers of skin, a normal face wash cannot effectively cleanse the skin. A toner, however may penetrate all three layers of skin to hydrate the skin and balance its pH. The hyaluronic acid is recognized for hydrating the skin and retaining moisture, making the skin appear supple and healthy. Salicylic acid which is present in this toner has a number of advantages, including its ability to treat acne, eliminate dead skin cells, prevent whiteheads and heal sunburns.

Keyword: *Cucumis sativus* (cucumber), *Aloe indica Royle* (*aloe Vera*), salicylic acid, hyaluronic acid

INTRODUCTION:

Toners can aid in pore appearance reduction, short-term skin tightening, organic oil and grime removal. After cleansing your skin, they are frequently designed to balance and hydrate it. It nourishes, moisturises, and

shields the skin as well. Toners can aid in tightening cell gaps and pore closure after washing to block the entry of pollutants and toxins into the skin. It can significantly improve the appearance and tightness of skin

pores (ageing skin) when used regularly and as part of daily skincare regimen. Skin toners are used increasingly as cosmeceutical products with a variety of benefits, such as antiseptics, rehydrating skin, balancing skin pH, closing skin pores and reducing irritation [1]. Skin melanoma is brought on by UV-induced melanogenesis, which is widely expressed [2], hormone levels [3], or conditions like melisma [4]. The majority of the melanin in human skin is produced by melanocytes in the basal layer of the epidermis [5]. The formation of melanin is known to be inhibited by a number of substances, most notably hydroquinone [6]. Additionally, flavonoids (quercetin and arbutin) [7, 8] have been proposed as potential skin lightening agents. However, their use, carcinogenicity and toxicity have all been connected to the genotoxicity of chemicals like hydroquinone [9]. Prior art provide evidence to support the conventional use of plant extracts as skin care products, including *Garcinia magostana* [10], which may have antioxidant and anti-tyrosinase properties. *Glycyrrhiza glabra* and *Morus alba* both exhibit potent anti-tyrosinase activity [11]. These plants might offer an alternative to the potentially hazardous properties of synthetic compounds. Skin ageing is caused by a variety of factors, including ultraviolet (UV)

radiation, excessive alcohol use, cigarette usage and environmental pollution. Together, these factors cause the skin's appearance and functions to steadily decline [12,13]. Uneven pigmentation, an increase in wrinkles, a loss of suppleness, dryness and roughness are signs of ageing skin. The use of natural ingredients in skin care products especially topical antioxidant treatments, demonstrates how well-liked they are for minimising the look of skin ageing [14, 15]. The goal of the current study was to examine the anti-tyrosinase and antioxidant capabilities of herbal extracts from *Cucumis Sativus* and *Aloe indica royle* for skin care.

METHODS AND MATERIALS: *Cucumis sativus* (cucumber) and *Aloe indica Royle* (aloe Vera) were harvested from gardens as samples. Hyaluronic acid procured from a chemical store and salicylic acid was created in a laboratory by Kolbe-Smidt reaction.

Cucumber extraction: *Cucumis sativus* (Cucumbers) were carefully peeled, cleaned and sliced into little pieces in order to collect the extract from them. The material was first diced and then processed in a grinder to produce cucumber juice. The material was then passed through a muslin cloth. The juice was then lyophilized at -70 °C in order to create a Cory extract in solid form. The

extracts can be stored in the refrigerator when not in use.

Aloe Vera extraction: The core collenchyma pulp of the aloe leaves was scraped off using a spatula. The pulp treated with 0.1 N NaOH solution to raise the pH of the juice and prevent too much acidity during processing after being continuously rinsed with water. A blender was used to separate the juice from the cleaned-up pulp. The acquired juice was vacuum filtered to separate the clear liquid. Clear liquid poured to the 934-skin tone (10%) and uniformly spread, making sure there were no lumps. The produced aloe Vera gel was measured out and stored in sealed containers in a dark location to prevent solar oxidation. Further used as a skin toner with suitable combination.

Salicylic acid serum: 13 g Salicylic acid and 5 mL of propylene glycol whisked together until they are combined into a paste. 1.2 gm of prepared salicylic acid paste added to 59 gm of banana oil (Nature sure products). Above mixture is thoroughly mixed and refrigerate it at 10-15°C.

Hyaluronic acid: Procured 5% hyaluronic acid from Matra products.

Formulation and application of Cucumis Sativa Toner (Toner 1 for dry skin): Combine 50 mL of water, 20 gm of Cucumis sativa extract, 10 gm glycerine, 5 gm Aloe

indica royle extract, 5 gm Banana oil and 1 gm 5% Hyaluronic acid thoroughly. Store this mixture at 10-15 °C. Apply 10 gm of Cucumis Sativa toner on washed face by scrubbing. Wash face & feel freshness.

Formulation and application of Salicylic acid toner (Toner 2 for oily skin): Combine 50 mL water, 20 gm Salicylic acid serum, 20 gm Aloe indica royle extract and 2 gm 5% Hyaluronic acid thoroughly. Store this mixture at 10-15°C. Apply 10 gm of Salicylic acid toner on washed face by scrubbing. Wash face & feel freshness.

RESULT AND DISCUSSIONS:

Formulated Cucumis sativa toner for oily skin and salicylic acid toner for dry skin and showed promising result. Formulated tonners have refreshing effects on skin & are stable at 10-15°C for storage.

Anti-bacterial activity of skin toners:

Bacterial analysis refers to a biological test that employs bacteria. The non-steroidal antimicrobial agent activity of a standard antibiotic formulation and the inhibition of bacterial growth it produces are compared in biological testing for bacteria to the effects of a component that is not concentrated. There are numerous techniques for doing the bacterial assay on a disc plate [16]. Following bacteria were employed in the investigation:

Staphylococcus aureus (gram +Ve) and Escherichia coli (gram -Ve).

Table 1: Results of Antibacterial activity – Zone of Inhibition in mm.

Sr no.	Name of bacteria	Cucumis Sativa Toner	Salicylic acid Toner	Standard (ampicillin)
1	<i>Staphylococcus aureus</i>	15	17	10
2	<i>E coil</i>	13	15	8

pH measurement: In an effort to rule out any adverse effects, the serum pH was tested. The pH of the touchscreen was set to be as skin friendly (pH 4.7 – 6) as possible because a pH that is excessively acidic or alkaline may irritate the skin. For the pH test, one gram of the substance was dissolved in 100 millilitres of water. The pH was determined using a pH metre. Both the toner had a pH range of 4.55 to 5.75.

CONCLUSION: *Cucumis Sativa* tonner (for dry skin) & Salicylic acid tonner (for oily skin) formulate as gel form for enrichment of skin. As a gel it persists well spreading ability and ease of application. Additionally, the creation of a toner was meant to test the skin-cleansing abilities of natural ingredients like *Cucumis sativus* (cucumber) and *Aloe indica* *Royle* (aloe vera) as well as their efficiency on the skin and found worth to apply. The outcomes are calming, cleaning, and toning effect on the skin. It heals and tightens pores of skin & removes black/white heads of the skin. It is an antiaging agent & skin radiant. These formulations have great scope

commercially in the world of cosmetics industries.

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