



(RESEARCH ARTICLE)



Plants and aesthetics

Sneha Ashish Agrawal *, Namrata Santosh Naware and Anuksha Ramesh Khobarekar

Department of Pharmacognosy, Bharati Vidyapeeth's College of Pharmacy, Sector-8, C.B.D., Belapur, Navi Mumbai - 400 614, India.

World Journal of Advanced Research and Reviews, 2022, 16(02), 1184–1191

Publication history: Received on 14 October 2022; revised on 21 November 2022; accepted on 24 November 2022

Article DOI: <https://doi.org/10.30574/wjarr.2022.16.2.1248>

Abstract

Skin comprises the largest organ of human body with over 20 vital physiological function one of which is a physical barrier to withstand pressure and trauma, It protects the body from pollution, radiation, sunlight, helps to regulate temperature, fluid balance, and excretion. Also involving endocrine function through the production of cholecalciferol by epidermis. People with sensitive skin are prone to get irritation, and products with chemicals, other strange often leave skin feeling dry, red, and sore. This survey was planned to gauge opinion and receive feedback from people of various age group in order to have a report of public knowledge regarding natural skin care drugs. It was planned to obtain statistics of public knowledge of skin health and create awareness amongst people to follow skin care routine and maintain it. The questionnaire designed to understand impact of plants in our day-to-day life. The survey was successfully conducted between 130-134 People. As the survey focuses on taking immediate instinct, 57.9% of participants prefer direct application of plant/herb home remedies whereas 39.1% choose organic marketed creams. Aloe vera, turmeric, tomato, dry coriander are easily available drugs and thus following the subtly made method of application.

Keywords: Aesthetic Plants; *Aloe Vera*; Coffee; Rice Water; Skin Care; Turmeric; Tomato; Tamarind

1. Introduction

Natural products are kinder to human skin and will work just as effectively. Our skin is very absorbent, and when we use products such as moisturizers, cleansers and toners, the ingredients within these are getting absorbed into our bodies [1,2]. Chemical toxins are very destructive whereas natural products, which are made from flower and plant extracts, are designed to nourish our skin, and do nothing but good [3]. Naturally sourced ingredients such as zinc oxide, tea tree oil and lavender extract are all wonderfully healing, that will improve skin tone, texture, and appearance by delivering nutrient necessary for healthy skin. It gives skin feeling smooth and nourished instead of sore and irritated like other products that contain harmful chemicals [4,5]. Natural extract is primarily added to the skin care formulation due to several associated properties such as antioxidant capacity pigmentation inhibition and antimicrobial activity, which can be beneficial for attenuation for prevention of various skin condition [6-8]. Over the last 20 years, clinical and laboratory studies have identified the benefits of an array of natural ingredients for skin care. For combating acne and rosacea, green tea, niacinamide and feverfew are considered efficacious. As to hyperpigmentation and antioxidative capabilities, licorice, green tea, arbutin, soy, acai berry, turmeric, and pomegranate are among those plants and compounds found to be most beneficial [9,10]. Pharmacognosy provides the tools to detect, isolate and identify bioactive principles from nature which are further developed for medicinal use [11]. The purpose of this research is also concentrated on the fact that it is important to have patience to start witnessing results because good things take time thus, we focused more on informing people about how one must keep consistency following the routine and also

* Corresponding author: Sneha Agrawal

Department of Pharmacognosy, Bharati Vidyapeeth's College of Pharmacy, Sector-8, C.B.D., Belapur, Navi Mumbai - 400 614, India.

keep patience to start observing the change. An effective routine can help prevent acne, treat wrinkles, and help keep your skin look best.

2. Material and methods

Our study was cross-sectional, carried out by a convenience, nonprobability sampling technique. We adopted this sampling because, due to movement constraints during a lockdown, it was impossible to approach a common man in the population. This technique of convenience sampling, which is a nonprobability sampling technique, allows researchers to select respondents directly from the population as per their convenience. This technique was cost-effective and time saving. The technique also promoted people to think thoroughly before submitting their responses, it gave them their own time, space, and idea. A semi structured questionnaire was developed in straightforward, understandable English by using Google form about some selected drugs which are easily available at home like aloe vera, turmeric, coffee, coriander, tomato, rice water, and tamarind [12-26]. A detailed questionnaire having closed-ended questions to plant and aesthetical on people of different age groups.

2.1. Data collection

For this survey, Google Forms were used. Google Forms are convenient and compatible with almost all browsers and also compatible with the majority of devices like mobile phones, computers, laptops, tablets. They work well on all types of smart phone devices and doesn't require much of the internet data. The process of data collection was held from 3rd April 2021 to 7th April 2021. The questionnaire was disseminated to known through WhatsApp, e-mails, and other social media platforms. The participants showed enough interest in giving their responses as they found the subject of the research is interesting and attention grabbing. As everyone thinks about healthier skin but are also unaware of how to take care of the same. After submitting the response, respective participants are requested to forward the form to their contacts, to get responses from all over the country. Participants above 15 years and comfortable in English filled the response with willingness. In total, we received 411 responses, we analyzed 134 responses to draw our results.

The questionnaire was used in order to ensure the regularity of information. It collects data in an organized and structural way. The first section contain the title and we gave a brief introduction about are aims so that the participant understand the purpose and significance of this survey. Following the title and description, we took general information like Email ID, Gender, Age group and skin type, skin concern, skin care routine. The second section included the questionnaires. All the questions were of multiple-choice questions and some of them were in yes/no type. The question was in following manner.

- Do you prefer direct application of plant/herb components home remedies, or you choose organic marketed creams and topicals?
- What are your skin concerns?
- For the above concerns, what remedies do you prefer or would like to prefer ?
- Skin acne is a major concern for all groups, do you think aloe vera acts against it effectively?
- Turmeric is a must-add ingredient in Indian savories, but do you use it for skin benefits as well ?
- Coriander - a culinary herb, has skin benefits too. What do you think it can used for?
- Coffee is the most common beverage in the 21st century, nevertheless are its skin benefits, do you know about those?
- What are the benefits of Rice water?
- Nowadays, tomatoes are used in face masks and topical applications, but many are still unaware of its skin-aid, do you know any?
- Tamarind is a good natural bleach and skin lightening aid?

Each question was followed with detailed information regarding selected drugs and provided with easy way to apply them for daily skin care routine at home.

2.2. Aloe vera gel

Treat aloe vera gel with honey and cucumber paste mix it nicely and apply this mask onto your skin for 15-20 minutes and then wash it off with warm water.

Action: Aloe vera gel has cooling properties and is anti-inflammatory. Hence, it is one of the most natural remedies for sunburn or burnt skin. Applying this gel helps with a protective layer for the skin, and it also helps to retain moisture. It is rich in antioxidants and minerals that boost the healing process [12].

Benefit: Nourishes skin, lightens blemishes and pigments, soothes skin, reduces acne [12].

2.3. Turmeric

Take 2 tablespoon of oatmeal and half teaspoon of turmeric powder then add few drops of lemon juice and add little amount of water to make paste. Apply and let it dry after drying rinse with messaging moment.

Action: Turmeric has antiseptic and antibacterial property. It regulate excessive sebum secretion in person suffering from acne and related problem [14]. Oats contain avenanthramide, antioxidant and anti-inflammatory compound with soothe itching, dry and irritated skin and has absorbed oil from skin it shows great use for acne prone skin. Lemon contain vitamin C that reduces skin damage, and premature aging of skin. Its astringent property contributes in tighten skin. Due to high pH level lemon can reduce oil on skin [14].

Benefits: Exfoliation, nourishing and soothing of skin, antiacne, reduces skin discoloration, treat pimple, and reduces skin breakout.

2.4. Coffee

Take half cup of coffee add few drops of milk and make a paste, apply this as face mask onto skin for 15 to 20 min and then wash it off with warm water [15].

Action: Coffee reduces cellulite which is the subcutaneous fat that causes dimpling of skin by dilating blood vessels beneath the skin and improves blood flow. Coffee contain trigonelline which on applying gets converted to niacin and this helps fight skin cancer. Caffeic acid is one of the constituents of coffee that act as antioxidant (protects cell from free radicles that are formed during the process of normal metabolism cause damage to skin) [15].

Benefits: Cellulite reduction, glowing skin, anti-aging, calming effect, exfoliation.

2.5. Coriander

Grind coriander seeds and add yoghurt or honey to it. Make a paste and apply onto skin for 15-20 min, and then wash it off with warm water [16].

Action: Coriander seeds act as antioxidant and anti-inflammatory, whereas yoghurt will rejuvenate skin, if skin is dry then replace yoghurt with honey which will act as humectant adding warm water to the mix will enhance absorption of the product.

Benefit: Reduces wrinkles and fine lines, reduces skin acne, gives glowing skin, soothes sunburn, reduces dark circles, fades blemishes and pigmentation [16].

2.6. Tomato

Make a paste of tomato, turmeric powder, and sandalwood powder apply on skin for 15 min and then rinse with warm water [20].

Benefits: Sandalwood rejuvenate the skin and improve complexion it also fights against skin aging problem tomato exfoliate and remove dead cell, it also reduces executive oil, brighten skin, prevent acne, delay sign of aging, tighten pores, relives skin irritation [20].

2.7. Rice water

Rinse rice with clean water to remove dirt and other impurity place the rice in bowl and pour it with the water. Let the rice soak 30 min. Swirl it around or lightly kneads until water comes into cloudy. Strain leaves the rice at room temperature for a day until it turns slight sour and start to ferment [17].

Benefit : soften and tighten the skin, give glow to skin, treat acne, treat rashes, stringent skin elasticity.

2.8. Tamarind

Mix tamarind pulp with yogurt and rose water make a paste and apply for 50 to 20 min and then wash it off.

Action: Tamarind contain alpha hydroxy acid (tartaric acid) which are known for exfoliating property. They unlock pour reduces age related spot and demists and keep thing clear [22].

Benefits: Clear acne, natural skin moisturizing and toning property. Cellulite reduction, remove dark ring around the neck [23].

2.9. Data analysis [26]

Classification and tabulation transform the new raw data collected through a questionnaire into useful information by organizing and compiling bits of data contained in each questionnaire that is responses were converted into understandable and orderly statistics are used to organize and analyze the data. For the analysis of primary data, the statistical tools used are percentages, pie charts, and Bar graphs.

3. Results and discussion

The survey was successfully conducted between 130-134 People (Figure 1). As the survey focuses on taking immediate instinct, 57.9% of participants prefer direct application of plant/herb home remedies whereas 39.1% choose organic marketed creams. It is found that more than 53% participants would prefer both natural and artificial cosmetics while surprisingly 42.5% participants already rely on natural ingredients for the type of skin concern faced individually. Rest few percentages of people said they still completely rely on cosmetics and creams only (Figure 2).

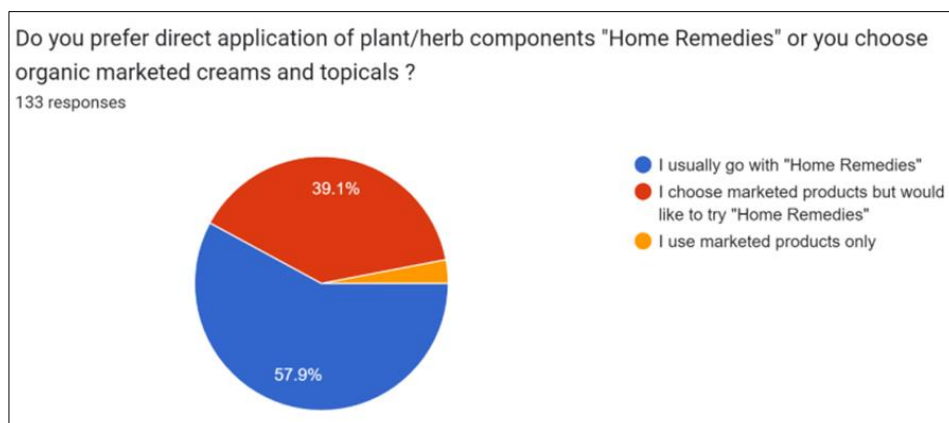


Figure 1 Preferences of home remedies

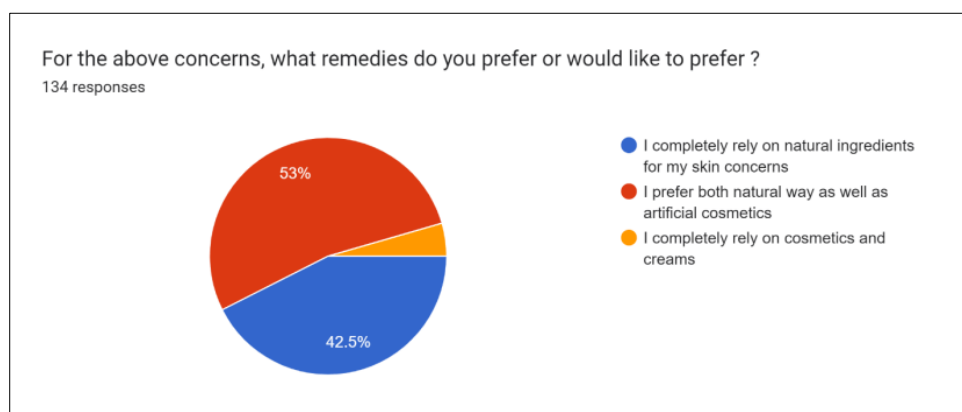


Figure 2 Preferences for skin care

As skin acne is obvious common concern affecting all the age group, whooping 83.1% participants think aloe vera can effectively work against the same. Aloe vera has worthful reasons to select it as one of the primary ingredients in the ordinary routine towards skincare and people had optimistically estimated the same (Figure 3). 97.6% of participants said yes for application of turmeric for skin benefits (Figure 4). 45.9% knows coriander for its soothing effect, 35.3% for skin glow, 33.1% for skin acne, and 42.1% for its anti-inflammatory effect (Figure 5: X-axis: no. of participants responded, Y-axis: selected options). 83.5% participants are aware about skin benefits of coffee and 14.3% are unaware (Figure 6). As per response we received for rice water benefits on skin 82.7% consider it as skin toner, 72.9% for glowing of skin and received mixed response for its application for acne, rashes, inflammation, scars, fine line, and hair growth (Figure 7: X-axis: no. of participants responded, Y-axis: selected options). Topical application of tomato give multiple skin benefits 66.9% says it gives skin glow, whereas 50.4% says it helps to get rid of sunburn 41.4% are aware about its blackhead’s removal property and its skin toning activity, 40.6% said it helps to heal acne (Figure 8: X-axis: no. of participants responded, Y-axis: selected options). 86.6% participants said tamarind is a good natural bleaching and skin lightening aid whereas 13.4% denied for same (Figure 9).

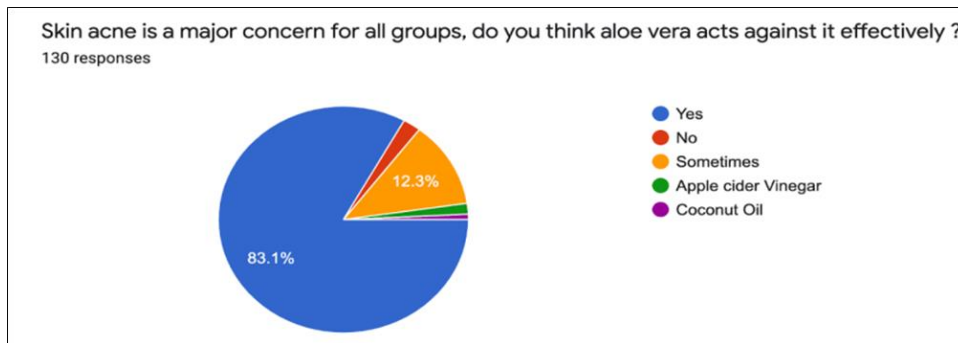


Figure 3 Effectiveness of Aloe vera in skin acne

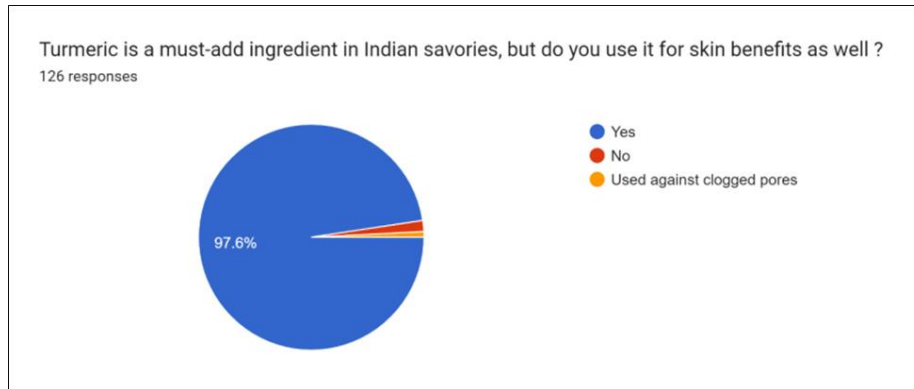


Figure 4 Turmeric application for skin benefits

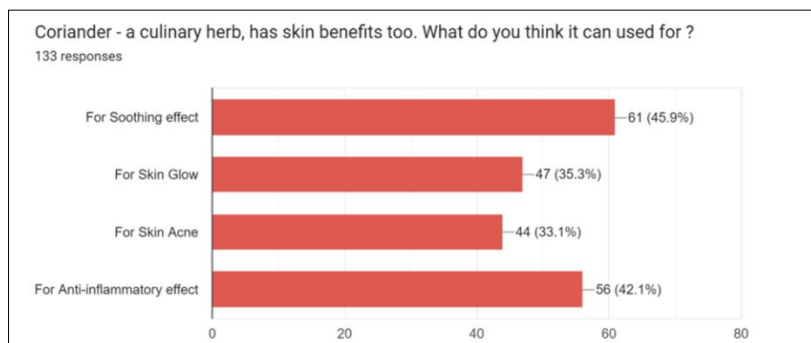


Figure 5 Various uses of Coriander

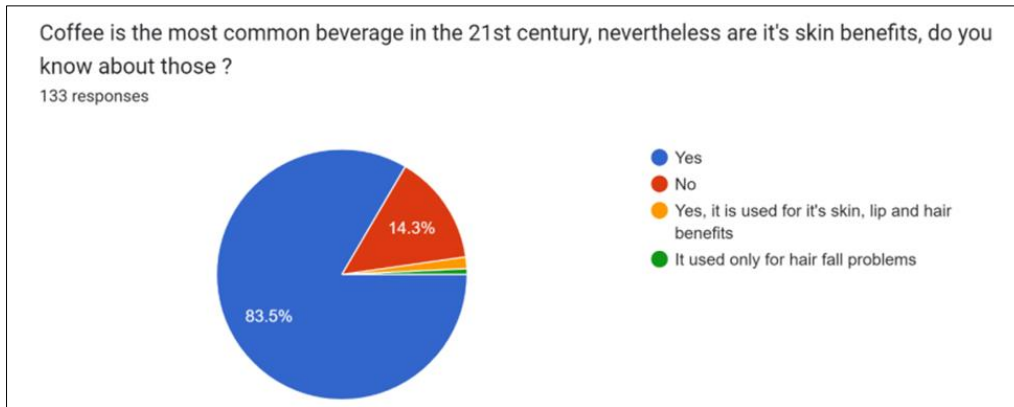


Figure 6 Awareness of skin benefits of Coffee

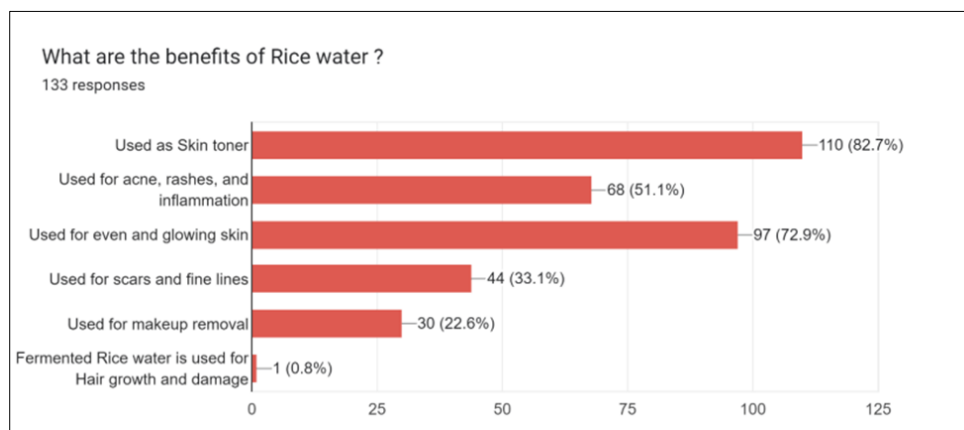


Figure 7 Benefits of rice water

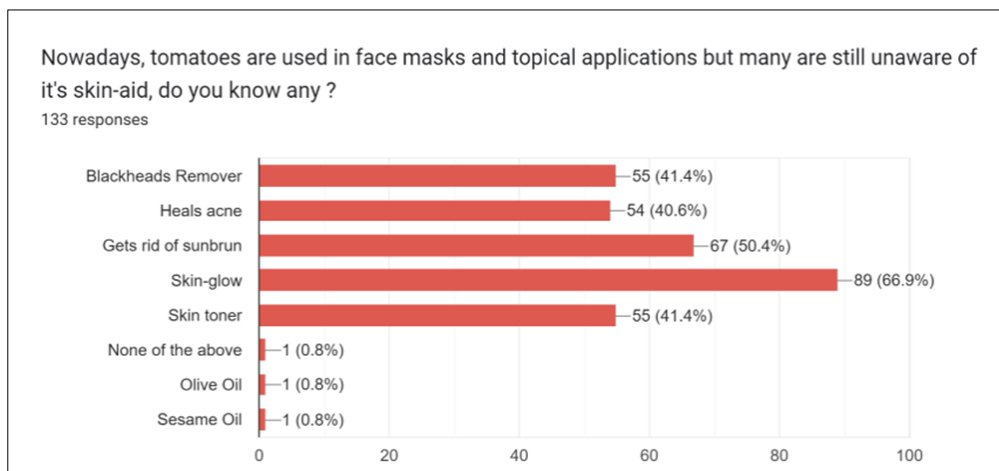


Figure 8 Applications of tomato

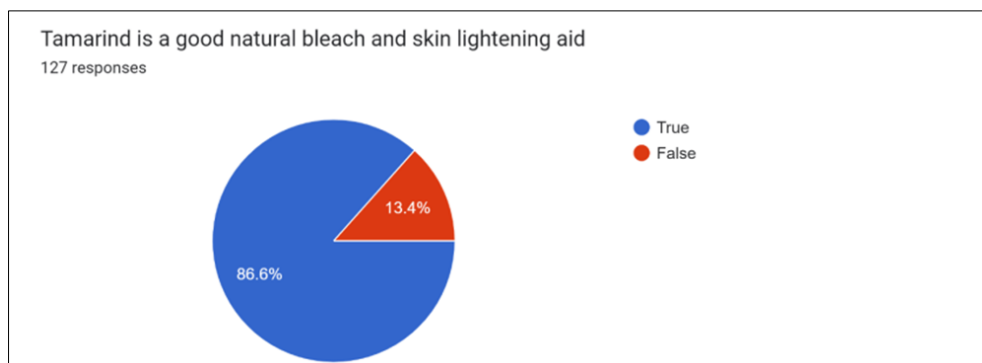


Figure 9 Tamarind as skin lightening agent

4. Conclusion

The skin is crucial part of the human body. With increase in urban and industrial revolution, the pollution from industries and vehicles is increasing every day. We focused on promoting the skin care routine by everyone at their early stages of life. The early the routine starts the better the skin becomes with consistency.

Aloe vera, turmeric, tomato, dry coriander are easily available drugs and thus following the subtly made method of application. Aloe vera gel scooped out fresh from washed leaf, Turmeric powder and lemon is one of the best combinations after a sunny day. The chemical constituent in turmeric helps removing the tan caused by sun while aloe vera soothes sunburn on the skin. Lemon contains Vitamin C and thus it acts as an antioxidant that may help reduce skin damage and premature aging.

The skin care routine involves 100% natural ingredients. Newer Ayurvedic based cosmetic brands are promoting their products as they understand the value they promise to cater. Here the most important thing to take into considerations is the onset of the benefits of the drugs begins steadily and people must keep patience to observe the change. All it requires is few minutes of your life's time to add years of fresher skin to your lifeline.

Compliance with ethical standards

Acknowledgments

We thanks all the participants for sharing their views with us. We appreciate support of all the students, faculties of Bharati Vidyapeeth's College of Pharmacy who helped us to complete our research work. We are thankful to all google, WhatsApp, and social media platforms for connecting us with people of all over India.

Disclosure of conflict of interest

The authors declare that there are no conflicts of interest in the preparation of this manuscript.

Statement of informed consent

Not applicable, all participants shared their views voluntarily as this study is designed to gather information about the skincare routines people following, to make them understand and get acquainted with the unrevealed benefits of day-to-day used natural drugs.

References

- [1] Joseph M. Abdo, Nikolai A. Sopko, Stephen M. Milner. The applied anatomy of human skin: A model for regeneration, *Wound Med* 2020; 28; 100179.
- [2] Surber, Christian, Kottner, Jan. Skin Care Products: What do they promise, what do they deliver. *J Tissue Viability*. 2016; 26.
- [3] Panico, A., Serio, F., Bagordo, F., Grassi, T., Idolo, A., DE Giorgi, M., Guido, M., Congedo, M., DE Donno, A. Skin safety and health prevention: an overview of chemicals in cosmetic products. *J Prev Med Hyg*. 2019; 60(1):E50–E57.

- [4] Emerald, Mila A, Emerald L, Emerald; Kumar, Vikas. Perspective of Natural Products in Skincare. *Pharm Pharmacol Int J*. 2016; 4: 1-3.
- [5] Jyotsna A. Saonere (Suryawanshi), Dr. M. N. Chanawar and Dr. S. L. Deore, Herbal Bioactives: A New Perspective in Skin Care Formulation, *World J Pharm Res*. 2021; 10 (5): 615-643.
- [6] Majtan J, Bucekova M, Jesenak M. Natural Products and Skin Diseases. *Molecules*. 2021; 26(15): 44-89.
- [7] Pillai, Sreekumar, Cornell, Marc, Oresajo, Christian. Epidermal Barrier. *Cosmetic Dermatology*. 2010; 3-12.
- [8] Fowler JF Jr, Woolery-Lloyd H, Waldorf H, Saini R. Innovations in natural ingredients and their use in skin care. *J Drugs Dermatol*. 2010; 9(6): 72-81.
- [9] Khan AD , Alam MN, Cosmetics And Their Associated Adverse Effects: A Review, *J Appl Pharm Sci*, 2019; 2(1):1-6.
- [10] Ana Sofia Ribeiro, Marilene Estanqueiro, M. Beatriz Oliveira and José Manuel Sousa Lobo, Main Benefits and Applicability of Plant Extracts in Skin Care Products, *Cosmetics* 2015; 2(2): 48-65.
- [11] Sánchez, Marta; González -Burgos, Elena; Iglesias, Irene; Gomez -Serranillos, M. Pilar. Pharmacological Update Properties of Aloe Vera and its Major Active Constituents. *Molecules*, 2020; 25(6):1324.
- [12] Gajendra Mahor and Sharique A Ali. Recent update on the medicinal properties and use of aloe vera. *Biosc. Biotech Res Comm*. 2016; 9(2): 273-288.
- [13] Gonzalez, T., Sethi, A. Curcumin (turmeric) and its evolving role in skin health. In: Preedy, V.R. (eds) *Handbook of diet, nutrition, and the skin*. Human Health Handbooks; Wageningen Academic Publishers. 2012; 1(2); 5-20.
- [14] Vaughn, Alexandra R.; Branum, Amy; Sivamani, Raja K. Effects of Turmeric (*Curcuma longa*) on Skin Health: A Systematic Review of the Clinical Evidence. *Phytother Res*. 2016; 30(8):1243–1264.
- [15] Sílvia M. F. Bessada , Rita C. Alves, and M. Beatriz P. P. Oliveira. Coffee Silverskin: A Review on Potential Cosmetic Applications. *Cosmetic*. 2018; 5(1): 1-11.
- [16] Hwang, Eunson , Lee, Do-Gyeong , Park, Sin Oh, Myung Kim, Sun. Coriander Leaf extract exerts antioxidant activity and protects against UVB-induced photoaging of skin by regulation of procollagen Type I and MMP-1 expression. *J Med Food*. 2014; 17(9):985-995.
- [17] Prabha R Chaudhari, Nishesh Tamrakar, Laxmi Singh, Ambika Tandon and Deepak Sharma. Rice nutritional and medicinal properties: A review article. *J pharmacogn phytochem*. 2018; 7(2):150-156.
- [18] Nida Ijaz; Arjumand Iqbal Durrani; Saima Rubab; Saraj Bahadur. Formulation and characterization of Aloe vera gel and tomato powder containing cream . *Sheng Tai Xue Bao*. 2022; 1-12.
- [19] Stylianou, M., Agapiou, A., Omirou, M. Converting environmental risks to benefits by using spent coffee grounds (SCG) as a valuable resource. *Environ Sci Pollut Res*. 2018; 25; 35776–35790.
- [20] Yamamoto, Taichi, Yoshimura, Mineka, Yamaguchi, Fumio, Kouchi, Tomoko, Tsuji, Ryohei, Saito, Makoto, Obata, Akio, Kikuchi, Mamor. Anti-allergic activity of naringenin chalcone from a tomato Skin Extract. *Biosci Biotechnol Biochem*. 2004; 68(8): 1347-6947.
- [21] Zeinab Dehghan-Shoar, Allan K. Hardacre, Gerrit Meerdink, Charles S. Brennan . Lycopene extraction from extruded products containing tomato skin. *Int J Food Sci*. 2011; 46(2):365–371.
- [22] Komutarin T, Azadi S, Butterworth L, Keil D, Chitsomboon B, Suttaji M, Meade BJ: Extract of the seed coat of *Tamarindus indica* exhibits nitric oxide production by murine microphages in vitro and in vivo. *Food Chem Toxicol*. 2004; 42: 649-658.
- [23] Doughari JH. Antimicrobial activity of *Tamarindus indica* Linn. *Tropical Journal of Pharmaceutical Research*. 2006; 5:597–603.
- [24] Roopa, S and Rani, MS. Questionnaire Designing for a Survey. *The Journal of Indian Orthodontic Society*. 2012; 46(4): 273-277.
- [25] Jon A. Krosnick. Stanley Presser. Question and Questionnaire Design. *Handbook of Survey Research* (2nd Edition) James D. Wright and Peter V. Marsden (Eds). San Diego, CA: Elsevier. 15, 2009. 1-81.
- [26] Ronald D. Fricker. Analysis of Questionnaire Data with R *Journal of Statistical Software*. 2012, 46, 1-4.