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ORIGINAL RESEARCH OPEN ACCESS

Effectiveness of various organic peels in facial rejuvenation and treatment of sensitive skin

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Abstract

The problems with adverse effects of conventional treatments for a range of dermatological conditions have led scientists to search for new compounds of therapeutic value. Efforts have included the evaluation of natural products such as manuka honey, black olives, citrus extracts , pumpkin enzyme extracts for example, has been scientifically recognized for its anti-microbial and skin rejuvenation properties and is now used clinically as a part of medi-facials or as basic low strength peels for skin rejuvenation and for those with sensitive skin. We evaluated the effects of various organic peels on sixty patients over a period of six months by using a grading scale for following skin characteristics post peel procedure; smoothness, firmness, even coloration, normal texture and absence of active skin infections. The overall score in current study was showed that the effectiveness of mandelic peel was more when compared with other organic peels which showed significant difference (p value 0.033).

Keywords: sensitive skin; organic peels; medifacials; black olive; manuka honey; pumpkin peel; citrus peel; chemical peels

Introduction

Skin is the largest organ and serves as a barrier to the entry of microbes into the body. Thus, skin health is an important aspect of personal health and self confidence. Moreover, it has a psychosocial effect on people and communications [1]. Skin's water content plays a significant role in skin health, aesthetics, glow and optimal hydration [2]. The basic principle of chemical peel is to improve the clinical appearance of acne scars, reducing inflammatory and non inflammatory acne lesions and producing an overall more youthful appearance [3]. Skin delicacy can be affected by ultraviolet (UV) exposure (sun damage), senescence, dehydration, stress, medication, and regime type. Medi-facials are medical-grade facials that go above and beyond what a regular salon facial can offer. Medi-facials are done by certified and experienced dermatologists to treat specific skin disorders which are safe for almost all skin types.

Materials and methods

Patients above the age of 18 years who came to outpatient department of dermatology; , who presented with Acne vulgaris, seborrhoea, and tanned skin were included in the study from September 2022 to March 2023 after obtaining Ethical Committee clearance. A total of 60 patients were included in the study with obtaining consent. Patients above 18 years of age are divided in to the following skin types and type of peel used for each category: (a) Combination Skin – Peel of patient's choice was done, (b) Dry skin – Go blanc manuka honey peel, go blanc citrus peel, (c) Oily skin-go blanc pumpkin peel, go black olive peel, go blanc mandelic peel.

Objective criteria: included the following skin characteristics: smoothness, firmness, even coloration, normal texture, and absence of any clinically evident disease. Grading of each element in the scoring system [minimal (1), average (2), maximal (3)], and subsequently the final score [excellent (12 to 15),

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average (7 to 11), poor (<7)] are done with reference to the healthy skin model defined. The above grading is done after the application of various organic peels depending on the skin types. Organic peels such as manuka honey peel, black olive peel, pumpkin peel, citrus peel and mandelic peel were used based on skin type of the patient at the interval of 2 weeks once sitting; over a period of 2 months. Before full face peel application; the initial irritation patch test results carried out on the skin of volunteers obtained that: there were no visible side effects in the form of redness, itching on the skin caused by the preparation of the peels. Patients were followed up weekly for signs of improvement of texture, hydration, for reduction of active skin lesions and even coloration of skin for 3 weeks.

Results

The study consisted of 25 male and 35 female volunteers. The volunteers were subdivided into 20 patients for combination skin type, 20 patients for oily skin and 20 patients for dry skin.

In the oily skin category; 6 patients - black olive peel was used and 7 each underwent pumpkin peel as shown in Figure 1 and mandelic peel. Firmness, even coloration and normal texture were comparable among the study groups. Smoothness was comparatively significant among patients with mandelic peel (p value 0.041). There was no clinical evidence of skin disease as statistically represented in Table 1.

Figure 1: Pumpkin peel is known for its properties to dissolve dull skin for an instant glow, (a) image shows tanned skin before procedure, (b) image shows instant glow of the skin post procedure.

Table 1: Organic peels results master chart - oily skin type.

Skin parameters	*Grade*	*Black olive*	*Pumpkin peel*	*Mandelic peel*	*p value*
Smoothness	1	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.041*
	2	5 (83.3%)	4 (57.1%)	1 (14.3%)	
	3	1 (16.7%)	3 (42.9%)	6 (85.7%)	
Firmness	1	0 (0.0%)	0 (0.0%)	0 (0.0%)	-
	2	0 (0.0%)	0 (0.0%)	0 (0.0%)	
	3	6 (100.0%)	7 (100.0%)	7 (100.0%)	
Even coloration	1	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.544
	2	1 (16.7%)	1 (14.3%)	0 (0.0%)	
	3	5 (83.3%)	6 (85.7%)	7 (100.0%)	
Normal texture	1	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.244
	2	2 (33.3%)	1 (14.3%)	0 (0.0%)	
	3	4 (66.7%)	6 (85.7%)	7 (100.0%)	
Clinical evident disease	Yes	0 (0.0%)	0 (0.0%)	0 (0.0%)	-
	No	6 (100.0%)	7 (100.0%)	7 (100.0%)	

In patients with combination skin type, 4 patients each underwent, pumpkin peel, mandelic peel as shown in figure 2. Manuka honey peel, black olive peel as seen in figure 3 and citrus peel. Smoothness, firmness, even coloration and texture was comparable among all the groups with no statistical difference (p value >0.05). One patient with citrus peel had acne after the procedure as analyzed in table 2.

Figure 2: Mandelic peel is used for its properties to exfoliate, clarify and to brighten the skin, (a) image shows yellowish rough textured skin before procedure, (b) image shows even colored smooth textured skin post peel.

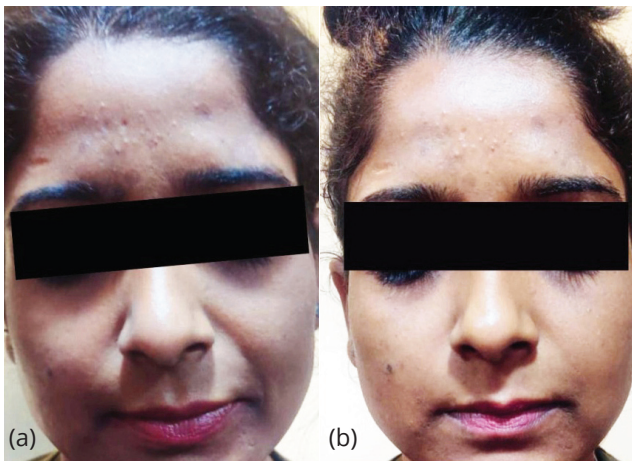

Figure 3: Black olive peel is an enzyme exfoliating powerhouse for brighter plumped skin, it protects and hydrates even the most sensitive skin, (a) showing dehydrated dull skin before peel. (b) showing hydrated brighter skin post peel.

Table 2: Combination skin statistics.

Skin feature	*Grade*	*Black olive*	*Pumpkin peel*	*Mandelic peel*	*Manuka peel*	*Citrus peel*	*p value*
Smoothness	1	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0.503
	2	2 (50%)	1 (25%)	0 (0%)	1 (25%)	2 (50%)	
	3	2 (50%)	3 (75%)	4 (100%)	3 (75%)	2 (50%)	
Firmness	1	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	-
	2	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	
	3	4 (100%)	4 (100%)	4 (100%)	4 (100%)	4 (100%)	
Even coloration	1	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (25%)	0.57
	2	2 (50%)	1 (25%)	0 (0%)	1 (25%)	1 (25%)	
	3	2 (50%)	3 (75%)	4 (100%)	3 (75%)	2 (50%)	
Normal texture	1	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0.615
	2	1 (25%)	1 (25%)	0 (0%)	1 (25%)	2 (50%)	
	3	3 (75%)	3 (75%)	4 (100%)	3 (75%)	2 (50%)	
Clinical evident disease	Yes	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (25%)	0.378
	No	4 (100%)	4 (100%)	4 (100%)	4 (100%)	3 (75%)	

Lastly, among 20 patients with dry skin type , for 10 patients manuka honey peel and for rest of the patients the citrus peel as shown in figure 4 was applied. Smoothness, firmness, even coloration and texture was comparable among all the groups with no statistical difference (p value >0.05). 40% of dry skin patients underwent citrus peel had acne which may be due to vitamin C sensitivity of the skin which was statistically significant (p value 0.025) as shown in table 3.

The overall score in current study was showed that the effectiveness of mandelic peel was more when compared with other organic peels which showed significant difference (p value 0.033) as depicted in Table 4.

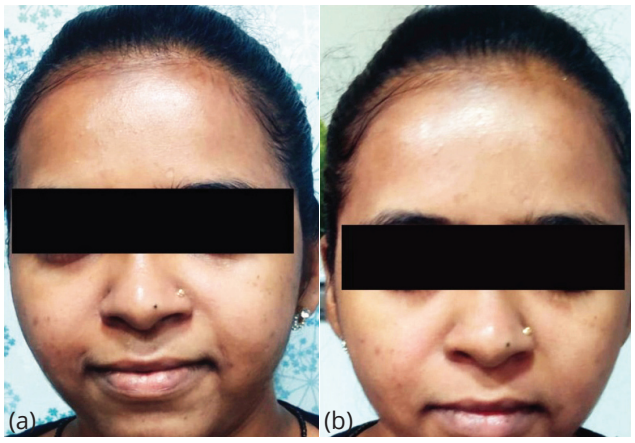

Figure 4: Citrus peel as the name suggests. Reveals brighter toned skin by exfoliating and unclogging the pores, (a) image before peel, (b) image reveals a fresh skin.

Discussion

Mandelic acid peel

Mandelic acid, is an aromatic glycolic acid with a benzene ring attached to the alpha-carbon where the hydroxyl group is attached [4]. Mandelic acid peel is one of the mildest and safest forms of chemical peeling having antibacterial properties. Mandelic acid is used in the treatment of superficial erythema and dyspigmentation and it reduces the cutaneous sebum production [5-8]. Mandelic acid peels is a great choice to reduce signs of aging, to improve skin tone and texture. It improves skin tone and texture by reducing hyperpigmentation. It helps restore damaged skin cells caused by UV rays from the sun as it stimulates collagen production, making it an ideal choice for melasma. Mandelic acid peel can help reduce the appearance of enlarged pores.

Manuka honey peel

Persian traditional medicine documented honey as effective in the treatment of wounds, eczema, and inflammation [9, 10]. Honey is used to treat cuts and wounds, eczema, dermatitis, burns, skin diseases [11-13]. Honey aids in tissue repair due to its antimicrobial properties [14, 15]. Honey has also been used extensively as an ingredient in aesthetic skin care products both in the past and present day [12]. Anti-carcinogenic effects of honey have also been observed *in vitro* and in a murine model of melanoma. Honey is a biologically active and clinically interesting substance but more research is necessary for a comprehensive understanding of its medicinal value in dermatology.

Table 3: Dry skin statistics.

Skin feature	*Grade*	*Manuka peel*	*Citrus peel*	*p value*
Smoothness	1	0 (0%)	0 (0%)	0.121
	2	1 (10%)	4 (40%)	
	3	9 (90%)	6 (60%)	
Firmness	1	0 (0%)	0 (0%)	-
	2	0 (0%)	0 (0%)	
	3	10 (100%)	10 (100%)	
Even coloration	1	0 (0%)	0 (0%)	0.060
	2	0 (0%)	3 (30%)	
	3	10 (100%)	7 (70%)	
Normal texture	1	0 (0%)	0 (0%)	0.263
	2	1 (10%)	3 (30%)	
	3	9 (90%)	7 (70%)	
Clinical evident disease	Yes	0 (0%)	4 (40%)	0.025*
	No	10 (100%)	6 (60%)	

Table 4: Overall score of all peels.

Score	*Black olive*	*Pumpkin peels peel*	*Mandelic peels peel*	*Manuka peel*	*Citrus peel*	*p value*
Excellent	3 (30%)	3 (27.3%)	10 (90.9%)	5 (35.7%)	3 (21.4%)	0.033*
Average	6 (60%)	7 (63.6%)	1 (9.1%)	8 (57.1%)	8 (57.2%)	
Poor	1 (10%)	1 (9.1%)	0 (0%)	1 (7.2%)	3 (21.4%)	

Black olive peel

They possess antioxidant and antineurodegenerative properties [16]. It protects and hydrates the most sensitive skin. It revitalizes and strengthens the skin tonicity. They prevent break out, reduce acne scars and comedones.

Pumpkin peel

Pumpkin peel is a less studied part of fruit which is rich in biologically active phytochemicals, such as carotenoids, polyphenolic compounds, and amino acids [17]. It aids in better regeneration of the epidermic layer, a higher density of dermis collagen fibers, and lower presence of inflammatory cells, indicating its regenerative potential [18]. Pumpkin are rich in Vitamin B and minerals like niacin and zinc which helps to control oil production and refines the skin surface. This also acts as a smart exfoliator.

Citrus peel

Risk of chronic skin diseases can be reduced by frequent consumption of fruits. Citrus plants belonging to the family Rutaceae which include fruits such as orange, mandarin, lime, lemon, sour orange and grapefruit are well known for promising source of multiple beneficial nutrients for our skin due to its antioxidant properties [19, 20]. It brightens and tones skin, combacting fine lines and wrinkles, hydrates skin. It also acts as effective depigmenting agent. More research is needed to establish bioavailability and real benefits of these peel extracts obtained from citrus peel *in vivo* [19].

In current study, among 20 patients with oily skin, 6 patients had black olive peel and 7 each had pumpkin peel and mandelic peel. Firmness, even coloration and normal texture were comparable among the study groups. Smoothness was comparatively significant

among patients with mandelic peel (p value 0.041). There was no clinical evidence of disease. In current study, among 20 patients with combination skin type, 4 patients each underwent black olive peel, pumpkin peel, mandelic peel, manuva honey peel and citrus peel. Smoothness, firmness, even coloration and texture was comparable among all the groups with no statistical difference (p value >0.05). One patient with citrus peel had acne after the procedure. In current study, among 20 patients with dry skin type, 10 patients had manuka honey peel and 10 patients had citrus peel. Smoothness, firmness, even coloration and texture was comparable among all the groups with no statistical difference (p value >0.05). 40% of dry skin patients underwent citrus peel had acne which may be due to vitamin C sensitivity of the skin which was statistically significant (p value 0.025). In current study it was showed that the effectiveness of mandelic peel was more when compared with other organic peels which showed significant difference (p value 0.033).

Limitations: The study was done in limited number of patients in a tertiary care centre which do not precisely reflect the disease profile of the community. Therefore multi-centric study with more number of patients is required to provide precise results and conclusive data.

Conclusion

Organic peels alone as basic low strength peels or as a part of medi-facials; as the name suggests, is the new age treatment that combines medicine and facial. They contain vitamins, minerals and antioxidants. It not only imparts an instant glow to the skin but also nourishes it, thereby reducing the effects of ageing without any harmful long-term side effects. They provide long-term nourishment and rejuvenation to your skin. Among all the peels, mandelic, pumpkin peel and black olive peels showed significant results. The scoring system is novel and easy to use, and can be implemented to help improve communication between dermatologists and patients as well as during the dissemination of knowledge during medical conferences.

Conflicts of interest

Authors declare no conflicts of interest.

References

[1] Yu B, Kang S-Y, Akthakul A, Ramadurai N, Pilkenton M, et al. An elastic second skin. Nat Mat. 2016; 15:911–918.

[2] Laguens M, Rendon MI, Reeves WH. The effects of a new transdermal hydrating and exfoliating cosmetic face mask in the maintenance of facial skin. Cosmet Dermatol. 2010; 23:370.

[3] Hassan KM, Benedetto AV. Facial skin rejuvenation: ablative laser resurfacing, chemical peels, or photodynamic therapy? facts and controversies. Clin Dermatol. 2013; 31:737–740.

[4] Aston JG, Newkirk JD, Jenkins DM, Dorsky J. Mandelic acid. Org Synth. 1952; 3:538.

[5] Berson DS, Cohen JL, Rendon MI, Roberts WE, Starker I, et al. Clinical role and application of superficial chemical peels in today's practice. J Drugs Dermatol. 2009; 8:803–811.

[6] Hassan KM, Benedetto AV. Facial skin rejuvenation: ablative laser resurfacing, chemical peels, or photodynamic therapy? facts and controversies. Clin Dermatol. 2013; 31:737–740.

[7] Wójcik A, Kubiak M, Rotsztejn H. Influence of azelaic and mandelic acid peels on sebum secretion in ageing women. Postepy Dermatol Alergol. 2013; 30:140–145.

[8] Sarkar R, Garg V, Bansal S, Sethi S, Gupta C. Comparative evaluation of efficacy and tolerability of glycolic acid, salicylic, mandelic acid, and phytic acid combination peels in melasma. Dermatol Surg. 2016; 42:384–391.

[9] Barakhbah SASA. Honey in the Malay tradition. Malays J Med Sci. 2007; 14:106.

[10] Sepehr S. The most important medicinal uses of honey and its side effects in the book of the Canon by Avienna and in the modern medical literature: A comparative study. J Api Prod Api Med Sci. 2010; 2:43.

[11] Deshpande SD. Indian honey as a medicine. J Api Prod Api Med Sci. 2010; 2:45.

[12] Ediriweera ER, Premarathna NY. Medicinal and cosmetic uses of Bee's Honey - A review. Ayu. 2012; 33:178–182.

[13] Subrahmanyam M. Practical application of honey dressing. Malays J Med Sci. 2007; 14:103.

[14] Majtan J. Honey: an immunomodulator in wound healing. Wound Repair Regen. 2014; 22:187–192.

[15] Sherlock O, Dolan A, Athman R, Power A, Gethin G, et al. Comparison of the antimicrobial activity of Ulmo honey from Chile and Manuka honey against methicillin-resistant Staphylococcus aureus, Escherichia coli and Pseudomonas aeruginosa. BMC Complement Altern Med. 2010;10:47.

[16] Alu'datt MH, Alli I, Ereifej K, Alhamad MN, Alsaad A, et al. Optimisation and characterisation of various extraction conditions of phenolic compounds and antioxidant activity in olive seeds. Nat. Prod. Res. 2011; 25:876–889.

[17] Sharma M, Bhat R. Extraction of carotenoids from pumpkin peel and pulp: Comparison between innovative green extraction technologies (Ultrasonic and Microwave-Assisted Extractions Using Corn Oil). Foods. 2021; 10:787.

[18] Shaygan S, Fakhri S, Bahrami G, Rashidi K, Farzaei MH. Wound-healing potential of cucurbita moschata duchesne fruit peel extract in a rat model of excision wound repair. Adv. Pharmacol Pharm Sci. 2021; 2021:6697174.

[19] Rafiq S, Kaul R, Sofi SA, Bashir N, Nazir F, et al. Citrus peel as a source of functional ingredient: A review. Journal of the Saudi Society of Agricultural Sci. 2018; 17:351–358.

[20] Wedamulla NE, Fan M, Choi YJ, Kim EK. Citrus peel as a renewable bioresource: Transforming waste to food additives. J Function Foods. 2022; 95:105163.