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Research Article

EDGE OF HERBAL PREPARATIONS FOR SKIN REGENERATION OVER SYNTHETIC OINTMENTS

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ABSTRACT

Skin is protective shield of body and any injury exposure onsets its regeneration and natural recovery process. As reported data confirm that synthetic wound healers disturb dermal natural metabolic process and their constituents replace natural activators at cellular level. While herbal preparations should be preferred to treat skin wounds and injuries because they are easy to access, low cost and do not cause any sort of side effects. They simply aid the natural healing mechanism of a living body. Herbal extracts based ointments serve as antimicrobial and anti-inflammatory agents who stimulate the natural wound healing and regeneration without interference of external harmful invading pathogens and also don't disrupt the natural triggering growth factors. Subsequently plantation of such pharmaceutical herbs, their dose optimization and further investigation should be focused at genetic level.

INTRODUCTION

Skin regeneration is an important subject of research work since long time round the globe. Because damaged and wounded skin is a main route of pathogens invasion and transmission to other internal organs. Under normal conditions it serves as barrier against external and internal disturbances and fluctuations but after wound exposure its functionality usually disrupts.

Skin wound may be caused by physical, chemical, thermal, microbial or immunological disruption to the tissue (Lynch, 1987; Savant and Shah, 1998). When skin is damaged and interruption occurs at the cellular and anatomical levels it results as an open wound whereas blunt force trauma leads to a contusion which is referred as closed wound, while the burn wounds are outcome of fire, heat, radiation, chemicals, electricity, or sunlight exposure (Bennet, 1988; Shuid *et al,* 2005; Jalalpure *et al,* 2008). The course of dermal wound healing and regeneration consists of incorporated cellular and biochemical events which provide base for reformation of textural and functional veracity with recovered strength of injured site of tissue (Lynch, 1987; Savant and Shah, 1998). That is why; wound healing requires uninterrupted cell-cell interface and cell-matrix interactions which regulates the progression to continue in various coinciding stages and processes related to dermal wound inflammation, contraction, re-epithelialization, injured site re-modeling, and formation of granulation tissue along with angiogenesis, reinnervation of nerves and re-growth of hair follicles. Under normal conditions, the steps of wound recovery proceed in a conventional manner, and in case of disturbance, healing may advance unbecomingly to result either a chronic wound such as a venous ulcer or pathological scarring such as a keloid scar (Martin, 1997). But in several cases, it is unpredictable either skin wound recovery will lead to a typical route or not. Whereas, with application of drugs, it has been reported that non-healing, under-healing or over healing may result. Hence, the objective of any injury treatment is to either shorten the healing duration or to reduce the undesired outcomes (Myers *et al,* 1980). That is why; exploration of an appropriate healer is aimed, which should be able to accelerate wounds' regeneration and normal healing process (Brown *et al,* 1988a; Mather *et al*, 1989), or it should be able to recovery pace, when a range of agents like corticosteroids cause its suppression (Ehrlich and Hunt, 1968), antineoplastics (Raju and Kulkarni, 1986), non steroidal anti-inflammatory substances (Lee, 1968b). Skin wounds are medically treated by implication of drugs mostly in two ways, topical application or systemically their oral in take (Savanth and Shah, 1998; Rains and Mann, 1988; Moy, 1993). The commonly applied topical agents cover a vast range of antibiotics and antiseptics (Chulani, 1996) (e.g. chlorhexidine, povidone iodine, aminoglycosides, metronidazole, mupiromycin; but may result in contact sensitization), wound dressing chemicals (e.g. Hydrogen peroxide, eusol and collagenase gel) (Savanth and Mehta, 1998), wound regenerating accelerators (eg. tretinoin, *aloe vera* extract, honey, comfrey, benzoyl peroxide, *chamomilia* extract,

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dexp anthenol, tetrachloride caoxide solution, clostebol acetate and the experimental cytokines. Moreover, several re-growth causing protein moieties like platelet derived growth factor, macrophage derived growth factor, monocyte derived growth factor (Brown *et al,* 1988a; Mather *et al,* 1989) are considered essential triggers for the initiation and promotion of wound healing and recovery. Similarly, reported data present that numerous substances like tissue extracts (Ramesh *et al,* 1990; Udupa *et al,* 1991), vitamins (Williams and Bissel, 1944), minerals (Rao *et al,* 1988a) and a wide range of plant products (Sharma *et al,* 1990; Udupa *et al,* 1991; Dahanukar, 2000) are capable to display promoted dermal wounds' healing (McAuliffe, 1989; Mayet *et al,* 2014).

eight hours (Pelt, 2012). It is important to mention here, either topical application or oral administration of these synthetic produce cause same after effects along with wound healing; because by using any route, finally they come in contact with the blood-stream. That is why; there is no way to avoid the negative effects of these artificial quick healers. In Table No.1, a bird eye view of leading synthetic skin ointments' constituents are given which enter in blood stream enter through skin wounded site and cause side effects as:

Table No.1 Major components of artificial dermal ointments and their toxic effects

Chemical	Harm After effects	Reference
Parabens	Allergic/skin reactions, disturbs serum, plasma, urine and breast milk for breast cancer	Darbre and Harvey, 2008; Guo and Kannan, 2013
Propylene Glycol	Liver abnormalities and kidney damage	Fasano *et al,* 2011
Sodium Laurel Sulfate	Urinary tract, bladder and kidney infections, genital disorders, eye irritations, skin rashes, hair loss, scalp scurf similar to dandruff, and allergic reactions.	Patil *et al,*1995; Robinson *et al,* 2010
Synthetic Colors	Carcinogens	Wainwright , 2008
Diethanolamine (DEA)	Anemia, nerve, kidney and liver degeneration	Melnick *et al,* 1994
Imidazolidinyl Urea and Diazolidinyl Urea	Contact dermatitis	Kathleen and Fransway, 1994
Behentrimonium Chloride	Necrosis and eye irritant	Cameron *et al,* 2013
Benzalkonium and PCBs	Breast cancer	Clark, 1983.
Triclosan	Bacterial resistance, liver cancer, endocrine disruptor	Witorsch, 2014; Yeuh *et al,* 2014
Phthalates	Reproductive and endocrine disruption	Darbre and Harvey, 2008; Lyche *et al,* 2009; Lopez-Carrillo *et al,* 2010
1, 4-dioxane	Carcinogen	Black *et al,* 2001; Guo and Kannan, 2013

Table No.2 Leading skin wounds healing herbs

Scientific name	Family	Reference
Achyranthes aspera	Amaranthaceae	Chakraborty *et al,* 2002
Allium cepa	Liliacea	Shams-Ghahfarokhi *et al,* 2006; Draelos, 2008
A. sativum	Liliaceae	Das and Saha, 2009
Aloe vera	Xanthorrhoeaceae	Kaufman *et al,* 1988; Koltai, 1995; Syed *et al,* 1996; Miller and Oslen *et al,* 2001; Kim *et al,* 2010
Azadirachta indica	Meliaceae	Joshi and Joshi, 2007; Arora and Bansal, 2011; Rasheed *et al,* 2012; Arora and Bansal, 2013
Bauhinia variegata	Fabaceae	Agarwal and Pandey, 2009
Beta vulgaris	Brassicaceae	Kapadia *et al,* 1996
Brassica oleraceae	Brassicaceae	Isbir *et al,*2000
Calendula officinalis	Asteraceae	Duran *et al,* 2005; Fuchs *et al,* 2005; Fonseca *et al,* 2010
Camellia sinensis	Theaceae	Renu, 2010
Cannabis sativus	Cannabinaceae	Oslen *et al,* 2001
Crocus sativus	Iridaceae	Brown *et al,* 2004; Das *et al,* 2010
Curcuma longa	Zingiberaceae	Limtrakul *et al,* 1997
Daucus carota	Apiaceae	Zeinab *et al,* 2011
Echinacea angustifolia, E. purpure	Asteraceae	Renu, 2010; Cassano *et al,* 2011; Sharma *et al,* 2011
Ficus carica, F. racemosa, F. bengaalensis	Moraceae	Bohlooli *et al,* 2007; Joshi and Joshi, 2007
Lavendula officinalis	Labiatae	Kim and Cho, 1999
Lawsonia inermis	Lythraceae	Yucel and Guzin, 2008; Kingston *et al,* 2009
Lycopersicon esculentum	Solanaceae	Stahl *et al,* 2001; Rizwan *et al,* 2011
Mangifera indica	Anacardiaceae	Ojewole, 2005; Joshi and Joashi, 2007
Matricaria chamomile, M. recutita	Asteraceae	Aertgeerts *et al,* 1985; Maiche *et al,* 1991; Patzelt-Wenczler and Ponce-Pöschl, 2000; Renu, 2010
Mirabilis jalapa	Nctaginaceae	Maxia *et al,* 2010
Momordica charantia	Cucurbitaceae	Singh and Singh, 1998
Plumbago zeylanica	Plumbaginaceae	Joshi and Joashi, 2007; Sand *et al,* 2012
Portulaca oleraceae	Portulacaceae	Quisumbing, 1978; Leung, 2006; Lim *et al,* 2011
Prunus persica	Rosaceae	Heo *et al,* 2001
Rosmarinus officinalis	Labiatae	Huang *et al,* 1994; Fu *et al,* 2007; Martin *et al,* 2008
Sarco asoca	Caesalpinaceae	Cibin *et al,* 2012
Thyme vulgaris	Lamiaceae	Renu, 2010

Synthetic healing products

Synthetic drugs are invented to exhibited pharmacological similarity to naturally occurring medicines. Their effective recovery response may range from a few hours to more than

Why Herbal drugs should be preferred?

Herbal preparations are commonly employed globally for skin injuries' dressing and recovery since ancient times and current research progress is still emphasizing their significance over

synthetic ones. Latest scientific data claims that the mode of action of herbal preparations is safer and more effective with minimum side effects (Brown *et al,* 1998). Dermal wounds medically treated by herbs exhibit rapid and improved regeneration because they enhance the speed of vascularization. In case of microbial infections, they show signs of antimicrobial action to heal faster. Herbs quickly overcome the nutritional deficiencies and results in better restoration because nutritional imbalance immensely hiders the wound revival (Sudhakar *et al.,* 2003). Moreover, Herbal extracts hold vast potential to cure a wide range of dermal disorders even including skin cancer. Their economical comparison with the allopathic skin ointments highlight that they can be managed with relatively low cost and particularly serve as ideal source of skin remedy in third world countries. Different experimental results reported that greater than 50% of plant species were found beneficial for skin wound care and for other related diseases, are restrictedly growing in forests, that is why; human activities such as deforestation, habitat destruction and urbanization are alarming for the long term survival and availability of such useful herbal flora (Tabbasum and Hamdani, 2014). In Table No. 2, some common skin regenerators are given which are capable of providing positive results for wound healing.

Future perspective

Herbal skin ointments implication further demands that the plantation and growth of these useful species should be focused to maintain their low cost and economical access. This target can be done by providing awareness to masses about their significance. Similarly, more clinical confirmatory results and supportive data are required for dose optimization. Moreover, general awareness should be provided to paramedical staff about replacement of harmful synthetic drugs by natural produce (Tabbasum and Hamdani, 2014).

References

Aertgeerts P, Albring M, Klaschka F, Nasemann T, Patzelt-Wenczler R, Rauhut K, *et al*. (1985).Comparative testing of Kamillosan cream and steroidal (0.25% hydrocortisone, 0.75% fluocortin butyl ester) and non-steroidal (5% bufexamac) dermatologic agents in maintenance therapy of eczematous diseases. Z Hautkr, 60:270–7.

Agrawal RC and Pandey S, (2009). Evaluation of anticarcinogenic and antimutagenic potential of *Bauhinia variegata* extract in Swiss albino mice. *Asian Pac J Cancer Prev*, 10:913–6.

A.J.H. Rains, and C.V. Mann. 1988, In: A.J.H. Rains, and C.V. Mann (Eds.), *Bailey and Love's A short practice of surgery*, 20th edn., English Language Book Soceity: London; 1-11.

Arora N, Bansal MP and Koul A, (2011). *Azadirachta indica* exerts chemopreventive action against murine skin cancer: Studies on histopathological, ultra structural changes and modulation of NF-kappaB, AP-1, and STAT1. Oncol Res, 19: 179–91.

Arora N, Bansal MP and Koul A, (2013). *Azadirachta indica* acts as a pro-oxidant and modulates cell cycle associated proteins during DMBA/TPA induced skin carcinogenesis in mice. Cell Biochem Funct, 31:385–94.

Black RE, Hurley FJ and Havery DC, (2001). Occurrence of 1,4-dioxane in cosmetic raw materials and finished cosmetic products. *J AOAC Int*., 84(3):666-70.

Bennet RG, (1988). Fundamentals of cutaneous surgery. St. Louis: C.V. Mosby; 778.

Bohlooli S, Mohebipoor A, Mohammadi S, Kouhnavard M and Pashapoor S, (2007). Comparative study of fig tree efficacy in the treatment of common warts (*Verruca vulgaris*) vs. cryotherapy. *Int J Dermatol*, 46: 524–6.

Brown GL, Curtsinger LT and White M, (1988a). Annals of Surgery, 208: 788-794.

Brown DJ and Dattner AM, (1998). Phytotherapeutic approaches to common dermatologic conditions. Arch Dermatol, 134(11):1401-1404.

Brown AC, Hairfield M, Richards DG, McMillin DL, Mein EA and Nelson CD, (2004). Medical nutrition therapy as a potential complementary treatment for psoriasis – Five case reports. Altern Med Rev, 9: 297–307.

Cameron DM, Donahue DA, Costin GE, Kaufman LE, Avalos J, Downey ME, Billhimer WL, Gilpin S, Wilt N and Simion FA, (2013). Confirmation of *in vitro* and clinical safety assessment of behentrimonium chloride-containing leave-on body lotions using post-marketing adverse event data. Toxicology in Vitro, 27(8): 2203–2212.

Carrillo LL, Hernández-Ramírez RU, Calafat AM, Torres-Sánchez L, Galván-Portillo M, Needham LL, Ruiz-Ramos R and Cebrián ME, (2008). Exposure to phthalates and breast cancer risk in northern Mexico. *J Appl Toxicol*, 28(5):561-78.

Cassano N, Ferrari A, Fai D, Pettinato M, Pellè S, Del Brocco L, *et al*. (2011). Oral supplementation with a nutraceutical containing Echinacea, methionine and antioxidant/immunostimulating compounds in patients with cutaneous viral warts. G Ital Dermatol Venereol, 146:191–5.

Chanda S and Baravalia Y, (2010). Screening of some plant extracts against some skin diseases caused by oxidative stress and microorganisms. Afr J Biotechnol, 9: 3210–7.

Chakraborty A, Brantner A, Mukainaka T, Nobukuni Y, Kuchide M, Konoshima T, *et al.* (2002). Cancer chemo-preventive activity of *Achyranthes aspera* leaves on Epstein-Barr virus activation and two-stage mouse skin carcinogenesis. Cancer Lett, 177: 1–5.

Cibin TR, Devi DG and Abraham A, (2012). Chemoprevention of two-stage skin cancer *in vivo* by *Saraca asoca*. Integr Cancer Ther, 11:279–86.

Clark HR, Ed. Merck Index, 10 Edn.: 139, (1983).

Darbre PD and Harvey PW, (2013). Paraben esters: review of recent studies of endocrine toxicity, absorption, esterase and human exposure, and discussion of potential human health risks. Environ Sci Technol, 17; 47(24):14442-9.

Das I and Saha T, (2009). Effect of garlic on lipid peroxidation and antioxidation enzymes in DMBA-induced skin carcinoma. Nutrition, 25:459–71.

Das I, Das S and Saha T, (2010). Saffron suppresses oxidative stress in DMBA-induced skin carcinoma: A histopathological study. Acta Histochem, 112: 317–27.

Dahanukar SA, Kulkarni RA and Rege NN, (2000). *Indian J Pharmacol*, 32: S81-S118.

Draelos ZD, (2008). The ability of onion extract gel to improve the cosmetic appearance of postsurgical scars. *J Cosmet Dermatol*, 7:101–4.

Duran V, Matic M, Jovanovć M, Mimica N, Gajinov Z, Poljacki M, *et al*. (2005). Results of the clinical examination of an ointment with marigold (*Calendula officinalis*) extract in the treatment of venous leg ulcers. *Int J Tissue React*, 27:101–6.

Ehrlich HP and Hunt TK, (1968). Ann Surg, 167: 324-326.

Fasano WJ, Berge WFT, Banton MI, Heneweer M and Moore NP, (2011). Dermal penetration of propylene glycols: measured absorption across human abdominal skin in vitro and comparison with a QSAR model. Toxicol in Vitro, 25(8):1664-70.

Fonseca YM, Catini CD, Vicentini FT, Nomizo A, Gerlach RF and Fonseca MJ, (2010). Protective effect of *Calendula officinalis* extract against UVB-induced oxidative stress in skin: Evaluation of reduced glutathione levels and matrix metalloproteinase secretion. *J Ethnopharmacol*, 127: 596–601.

Fu Y, Zu Y, Chen L, Efferth T, Liang H, Liu Z, *et al*. (2007). Investigation of antibacterial activity of rosemary essential oil against *Propionibacterium* acnes with atomic force microscopy. Planta Med, 73:1275–80.

Fuchs SM, Schliemann-Willers S, Fischer TW and Elsner P, (2005). Protective effects of different marigold (*Calendula officinalis* L.) and rosemary cream preparations against sodium-lauryl-sulfate-induced irritant contact dermatitis. Skin Pharmacol Physiol., 18:195–200.

Guo Y and Kannan K, (2014). A survey of phthalates and parabens in personal care products from the United States and its implications for human exposure. Archives of Environmental Contamination and Toxicology, 66(1): 113-119.

Hectorne KJ and Fransway AF, (1994). Diazolidinyl urea: incidence of sensitivity, patterns of cross-reactivity and clinical relevance. Contact Dermatitis, 13(1):16-19.

Heo MY, Kim SH, Yang HE, Lee SH, Jo BK and Kim HP, (2001). Protection against ultraviolet B-and C-induced DNA damage and skin carcinogenesis by the flowers of *Prunus persica* extract. Mutat Res, 496:47–59.

H.L. Chulani. 1996, In: *The law of medical negligence,* 1st edn., Radhakrishan Medical and Educational Trust: Mumbai; 51-83.

Huang MT, Ho CT, Wang ZY, Ferraro T, Lou YR, Stauber K, *et al*. (1994). Inhibition of skin tumorigenesis by rosemary and its constituents carnosol and ursolic acid. Cancer Res, 54:701–8.

Isbir T, Yaylim I, Aydin M, Oztürk O, Koyuncu H, Zeybek U, *et al*. (2000). The effects of *Brassica oleraceae* var capitata on epidermal glutathione and lipid peroxides in DMBA-initiated-TPA-promoted mice. Anticancer Res, 20:219–24.

Jalalpure SS, Agrawal N, Patil MB, Chimkode R and Tripathi A, (2008). Antimicrobial and wound healing activities of leaves of *Alternanthera sessilis* Linn. International Journal of Green Pharmacy, 2(3): 141–144.

Joshi AR and Joshi K, (2007). Ethnomedicinal plants used against skin diseases in some villages of Kali Gandaki Bagmati and Tadi Likhu watersheds of Nepal. Ethnobotanical Lealf, 11:235–46.

Kapadia GJ, Tokuda H, Konoshima T and Nishino H, (1996). Chemoprevention of lung and skin cancer by *Beta vulgaris* (beet) root extract. Cancer Lett, 100:211–4.

Kaufman T, Kalderon N, Ullmann Y and Berger J, (1988). *Aloe vera* gel hindered wound healing of experimental second-degree burns: A quantitative controlled study. *J Burn Care Rehabil*, 9: 156–9.

Kim HM and Cho SH, (1999). Lavender oil inhibits immediate-type allergic reaction in mice and rats. *J Pharm Pharmacol*, 51: 221–6.

Kim J, Lee IS, Park S and Choue R, (2010). Effects of *Scutellariae* radix and *Aloe vera* gel extracts on immunoglobulin E and cytokine levels in atopic dermatitis NC/Nga mice. *J Ethnopharmacol*, 132:529–32.

Kingston C, Jeeva S, Jeeva GM, Kiruba S, Mishra BP and Kannan D, (2009). Indigenous knowledge of using medicinal plants in treating skin diseases in Kanyakumri district, Southern India. *Indian J Tradit Knowl*, 8: 196–200.

Lee KH, (1968 b). J Pharm Sci, 57: 1238-1240.

Leung AY, Ed. Foster's Encyclopedia of Common Natural Ingredients used in Foods. Drugs and Cosmetics, 2nd Edn. Wiley-Interscience Publication: 30-37, (1996).

Lim YY, Kim HM, Park WS, Kim JH, Shin HJ, Kim MN, *et al*. (2011). Anti-inflammatory and anti-pruritic effects of *Portulaca oleracea* L. extract using *in vitro* and *in vivo* inflammation model: LPS-treated raw264.7 cells, keratinocytes, NC/Nga mice and hairless SKH-1 mice. Korean J Asthma Allergy Clin Immunol, 31:199–206.

Limtrakul P, Lipigorngoson S, Namwong O, Apisariyakul A and Dunn FW, (1997). Inhibitory effect of dietary curcumin on skin carcinogenesis in mice. Cancer Lett, 116: 197–203.

Mather MD, Sherman M, Frycakowski A and Jester JV, (1989). Invest Ophthalmol Vismal Sci, 30: 2403-2406.

Maiche AG, Gröhn P and Mäki-Hokkonen H, (1991). Effect of chamomile cream and almond ointment on acute radiation skin reaction. Acta Oncol, 30: 395–6.

Martin P, (1997). Wound healing—aiming for perfect skin regeneration. Science, 276(5309): 75–81.

Martin R, Pierrard C, Lejeune F, Hilaire P, Breton L and Bernerd F, (2008). Photoprotective effect of a water-soluble extract of *Rosmarinus officinalis* L. against UV-induced matrix metalloproteinase-1 in human dermal fibroblasts and reconstructed skin. *Eur J Dermatol*, 18:128–35.

Maxia A, Sanna C, Salve B, Kasture A and Kasture S, (2010). Inhibition of histamine mediated responses by *Mirabilis jalapa*: Confirming traditional claims made about antiallergic and antiasthmatic activity. Nat Prod Res, 24: 1681–6.

Mayet N, Choonara, YE, *et al*. (2014). A comprehensive review of advanced biopolymeric wound healing systems. *J Pharm Sci*, 103 (8): 2211–2230.

McAuliffe, (1989). Span, 18-19.

Melnick RL, Mahler J, Bucher JR, Thompson M, Hejtmancik M, Ryan MJ and Mezza LE, (1994). Toxicity of diethanolamine-1 drinking water and topical application exposures in F344 rats. *Journal of applied toxicology*, 14(1):1-9.

Miller MB and Koltai PJ, (1995). Treatment of experimental frostbite with pentoxifylline and *aloe vera* cream. Arch Otolaryngol Head Neck Surg, 121:678–80.

Morsy TA, Morsy GH and Sanad EM, (2002). *Eucalyptus globulus* (camphor oil) in the treatment of human demodicidosis. J Egypt Soc Parasitol, 32:797–803.

Morsy TA, Rahem MA, El-Sharkawy EM and Shatat MA, (2003). *Eucalyptus globulus* (camphor oil) against the zoonotic scabies, Sarcoptes scabiei. *J Egypt Soc Parasitol*, 33: 47–53.

Moy LS, (1993). Dermatol Clin, 11:759-766.

Myers KA, Marshal RD, Friedin J. Principles of Pathology in Surgery, 1st Edn, Blackwell Scientific Publications, London; 58-82, (1980).

Ojewole JA, (2005). Antiinflammatory, analgesic and hypoglycemic effects of *Mangifera indica* Linn. (*Anacardiaceae*) stem-bark aqueous extract. Methods Find Exp Clin Pharmacol, 27: 547–54.

Olsen DL, Raub W, Jr, Bradley C, Johnson M, Macias JL, Love V, *et al*. (2001). The effect of *Aloe vera* gel/mild soap versus mild soap alone in preventing skin reactions in patients undergoing radiation therapy. Oncol Nurs Forum, 28:543–7.

Patil S, Singh P, Sarasour K, Maibach H, (1995). Quantification of sodium lauryl sulfate penetration into the skin and underlying tissue after topical application--pharmacological and toxicological implications. *J Pharm Sci*, 84(10):1240-4.

Patzelt-Wenczler R and Ponce-Pöschl E, (2000). Proof of efficacy of Kamillosan (R) cream in atopic eczema. *Eur J Med Res*, 5: 171–5.

Pelt MAJV, (2012). Synthetic Drugs — Fake Substances, Real Dangers. *Social Work Today,* 12(4): 12.

Quisumbing E, (1978).Medicinal Plants of the Phillipines. Katha Publishing Company, JMC Press.

Raju SS and Kulkarni DR, (1986). *Indian J Pharmacol*, 18:154-157.

Ramesh KV, Rao CM, Bairy KL and Kulkarni DR, (1990). *Indian J Exp Biol*, 28:43-45.

Rao CM, Ashok Kumar and Kulkarni DR, (1988a). *Indian J Physiol Pharmacol*, 32(1):61-66.

Rasheed A, Shama SN, Joy JM, Reddy BS and Roja C, (2012). Formulation and evaluation of herbal anti-acne moisturizer. Pak J Pharm Sci, 25: 867–70.

Renu S, (2010). Treatment of skin diseases through medicinal plants in different regions of the world. *Int J Compr Pharm*, 4: 1–4.

Rizwan M, Rodriguez-Blanco I, Harbottle A, Birch-Machin MA, Watson RE and Rhodes LE (2011). Tomato paste rich in lycopene protects against cutaneous photodamage in humans *in vivo*: A randomized controlled trial. *Br J Dermatol*, 164:154–62.

Robinson VC, Bergfeld WF, Belsito DV, Hill RA, Klaassen CD, Marks JG, Shank RC, Slaga TJ, Snyder PW and Alan Andersen F, (2010). Final report of the amended safety assessment of sodium laureth sulfate and related salts of sulfated ethoxylated alcohols. *Int J Toxicol*, 29(4):151S-61S.

S.S. Savant, and R.A. Shah. 1998. In: S.S. Savant, R.A. Shah, and D. Gore (Eds.), *Text book and atlas of Dermatology and Cosmetology,* 1st edn., Mumbai: ASCAD; 12-17.

S.S. Savanth, and R.A. Shah. 1998, In: S.S. Savanth, R.A. Shah, and D. Gore (Eds.), *Text book and atlas of dermatosurgery and cosmetology*, 1st edn., ASCAD: Mumbai; 1-11

S.S. Savanth, and N. Mehta. 1998, In: S.S. Savanth, R.A. Shah, and Gore D. (Eds.), *Text book and atlas of dermatosurgery and cosmetology,* 1st edn., ASCAD: Mumbai; 50-61.

Sand JM, Bin Hafeez B, Jamal MS, Witkowsky O, Siebers EM, Fischer J, *et al*. (2012). Plumbagin (5-hydroxy-2-methyl-1, 4-naphthoquinone), isolated from *Plumbago zeylanica*, inhibits ultraviolet radiation-induced development of squamous cell carcinomas. Carcinogenesis, 33: 184–90.

Shams-Ghahfarokhi M, Shokoohamiri MR, Amirrajab N, Moghadasi B, Ghajari A, Zeini F, *et al* (2006). *In vitro* antifungal activities of *Allium cepa, Allium sativum* and ketoconazole against some pathogenic yeasts and dermatophytes. Fitoterapia, 77: 321–3.

Sharma SP, Aithal KS, Srinivasan KK, Udupa AL, Vasanth K and Kulkarni DR, (1990). Fitoterapia, 61: 263-266.

Sharma M, Schoop R, Suter A and Hudson JB, (2011). The potential use of *Echinacea* in acne: Control of *Propionibacterium* acnes growth and inflammation. Phytother Res, 25: 517–21.

Shuid N, Anwar MS and Yusof AA, (2005). The effects of *Carica papaya* Linn. latex on the healing of burn wounds in rats. Malaysian *Journal of Medicine and Health Sciences*, 3(2): 39–47.

Singh A, Singh SP and Bamezai R, (1998). *Momordica charantia* (Bitter Gourd) peel, pulp, seed and whole fruit extract inhibits mouse skin papillomagenesis. Toxicol Lett, 94:37–46.

Stahl W, Heinrich U, Wiseman S, Eichler O, Sies H and Tronnier H, (2001). Dietary tomato paste protects against ultraviolet light-induced erythema in humans. *J Nutr*, 131:1449–51.

Sudhakar RGV, Slvaraj J, Ramanan SR, Radhakrishnan N and Manohar MB, (2003). Efficacy of some indigenous medicines in wound healing in rats. *Indian Journal of Animal Sciences*, 73: 652-653.

Syed TA, Ahmad SA, Holt AH, Ahmad SA, Ahmad SH and Afzal M, (1996). Management of psoriasis with *Aloe vera* extract in a hydrophilic cream: A placebo-controlled, double-blind study. Trop Med Int Health, 1:505–9.

Tabassum N and Hamdani M, (2014). Plants used to treat skin diseases. Pharmacogn Rev, 8(15): 52–60.

Tantray MA, Tariq KA, Mir MM, Bhat MA and Shawl AS, (2009). Ethnomedicinal survey of shopian, Kashmir (J and K), India. Asian J Tradit Med, 4:1–6.

Udupa SL, Shaila HP, Udupa AL, Ramesh KV and Kulkarni DR, (1991). Biochem Arch, 7: 207-212.

Udupa SL, Udupa AL and Kulkarni DR, (1991). Fitoterapia, 62: 146-150.

Wainwright M, (2008). Dyes in the development of drugs and pharmaceuticals. Dyes and Pigments, 76(3):582–589.

Williams RH and Bissel GW, (1944). Arch Surg, 49: 225-230.

Witorsch RJ, (2014). Critical analysis of endocrine disruptive activity of triclosan and its relevance to human exposure through the use of personal care products. Crit Rev Toxicol, 44 (6): 535-55.

W.S. Lynch. 1987. In: E. Epstein, and E. Epstein (Eds.), *Skin Surgery,* 6th edn., WB Saunders: Philadelphia; 56-70.

Yucel I and Guzin G, (2008). Topical henna for capecitabine induced hand-foot syndrome. Invest New Drugs, 26:189–92.

Yueh MF, Taniguchi K, Chen S, Evans RM, Hammock BD, Karin M and Tukey RH, (2014). The commonly used antimicrobial additive triclosan is a liver tumor promoter. Proc Natl Acad Sci, 111(48): 17200-5.

Zeinab RA, Mroueh M, Diab-Assaf M, Jurjus A, Wex B, Sakr A, *et al*. (2011). Chemo-preventive effects of wild carrot oil against 7, 12-dimethyl benz (a) anthracene-induced squamous cell carcinoma in mice. Pharm Biol, 49: 955–61.

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