

WORLD JOURNAL OF PHARMACEUTICAL RESEARCH

SJIF Impact Factor 5.990

Volume 4, Issue 5, 600-614.

Review Article

ISSN 2277-7105

EFFECT OF MEDICINAL PLANTS ON VARIOUS SKIN DISEASES: A REVIEW

Basanti Majhi¹, Dr. Kunja Bihari Satapathy*², Dr. Sagar Kumar Mishra³

^{1,2}P. G. Department of Botany, Utkal University, Vanivihar, Bhubaneswar-751004, Odisha, India.

³P.G. Department of Pharmacognosy, Utkal University, Vanivihar, Bhubaneswar- 751004, Odisha, India..

Article Received on 22 Feb 2015,

Revised on 13 March 2015, Accepted on 05 April 2015

DOI: 10.20959/wjpr20155-3251

*Correspondence for Author Dr. Kunja Bihari Satapathy

P. G. Department of Botany, Utkal University, Vanivihar, Bhubaneswar-751004, Odisha, India.

ABSTRACT

At present many thousand peoples are suffering from various type of skin disease, skin disease are spreading day by day not only in India but also all over the world reason of radiation effects, climates changes and a lot of side effects of synthetic drugs. Skin diseases are classified in acute and chronic conditions. Generally chronic skin diseases typically aren't curable, but they can be managed using drugs. But in herbal medicine so many medicinal plants are using to manage and also treat for skin diseases. Different parts of medicinal plants such as leaf, flower, seed, bark, fruit and roots are taken in different forms. Medicines prepared from medicinal plants are either taken orally, or in direct forms, such as paste, powder, decoction etc. In majority areas of the world, people still rely on herbal medicines for treatment of various

skin diseases such as eczema, rash, scabies, cuts, wounds, boils, blisters, itching, leucoderma, leprosy, impetigo, swelling, ringworm, septic abscess, psoriasis, dandruff, skin allergy, burns, chicken pox, warts etc. Results show the persistence of herbal medicine practices to alleviate different kinds of skin ailments and this medication play vital role in life of people.

KEYWARDS: Medicinal plants, Herbal medicine, Skin diseases.

INTRODUCTION

Plant-based medicines have a respectable position today, especially in developing countries where modern health services are not sufficient. Indigenous remedies are gaining popularity in both rural and urban areas because they are effective, safe and inexpensive. Information

collected from ethnic groups or indigenous traditional medicine has played an important role in the discovery of new products from plants as chemotherapeutic agents.^[1] (Katewa *et al.*, 2004).

Skin diseases can be caused by a number of microbes and the skin is a haven for many microbes. Medicinal plants have been used in traditional treatment of skin infections worldwide. The present study focused on the review of the antimicrobial activity of some medicinal plants against bacterial and fungal infections of the skin.

Human skin, the outer covering of the body, is the largest organ in the body. It also constitutes the first line of defense. Skin contains many specialized cells and structures. It is divided into three main layers viz. epidermis, dermis and hypodermis. Each layer provides a distinct role in the overall function of the skin. Epidermis, the outer most layer of the skin, varies in thickness in different regions of the body. It is the thinnest on the eyelids (0.05 mm) and the thickest on the palms and soles (1.5 mm). The dermis also varies in thickness depending on the location of the skin. It is 0.3 mm on the eyelid and 3.0 mm on the back of the body. The dermis is attached to an underlying hypodermis or subcutaneous connective tissue. The subcutaneous tissue is a layer of fat and connective tissue that houses larger blood vessels and nerves. This layer is important in the regulation of temperature of the skin itself and the body. The size of this layer varies throughout the body and from person-to-person. Hair follicles, sweat glands and sebaceous glands are the main skin appendages. [2]

Skin is the most extensive and diverse organ of the human body. General skin condition is important not only for the aesthetic reasons, but also because of health. Its unfavourable look resulting from dermatitis affects the psychic condition of the patient, and both these factors play an important role in development and treatment of chronic skin diseases.^[3]

Skin disease refers to disorders of predominantly the superficial layers of the skin. The common skin problems are Acne, Burn, scars, Psoriasis, Scabies, Skin grafting, Vitiligo, Pediculosis, Herpes simplex infection, Varicella, Herpes Zoster, Erythema, Urticaria etc. They are found in children, young and adults as well as in old persons. Usually for peak level skin disorder, the therapy of skin problems is longer for complete removal of problems. In all over the world use of drug like Benzoyl Peroxides, Proactive, Antibiotics, Retin-A, Oral retinoid, Salicylic acid, Anti-Histaminic, Minerals and Vitamins, Steroids, Analgesic are of

more interest for skin specialist for the modern treatment. But the herbal medicine is becoming popular due to toxicity and side effects of allopathic medicines.^[4]

Skin and soft tissue infections that usually follow minor traumatic events or surgical procedures are caused by a wide spectrum of bacteria. Involvement of antibiotic resistant organisms in these infections increases the difficulty of their treatment and may have significant influence on the ultimate outcome. Selection of an effective antimicrobial agent for a microbial infection requires knowledge of the potential microbial pathogen, an understanding of the pathophysiology of the infectious process and of the pharmacology and pharmacokinetics of the intended therapeutic agents. In addition geographic variation has also been found in the antimicrobial susceptibility patterns. [5]

Skin disease is a general disorder. Illness of skin affects the persons from all age groups and produce damage in many ways. Physical inspection of the skin and the mucous membranes makes foundation of an exact analysis of skin membrane conditions. [6] These conditions mostly present with skin exterior changes (wound) which have additional or fewer discrete. Skin is a shelter for number of microbes and it cause different types of skin diseases which is very harmful for the human body. Many ethnobotanical plants used in customary treatments of skin infection globally. Against bacterial and fungal infections of the skin different types of medicinal plants focused on the antimicrobial activity. Wide-ranging skin infection comprises wounds, blisters, itching, allergy, carbuncles, cellulitis, impetigo, boils, cuts and complications from burns and other skin ailments. Widespread pathogens cause infection includes Staphylococcus aureus and Pseudomonas aeruginosa. Fungal infections, such as candidal infections usually occur in warm moist body areas. Frequently skin effectively blocks the yeasts and breakdown or cuts in the skin may permit these organisms to penetrate the skin. [6] In majority areas of the world, people still rely on herbal medicines for treatment of different skin problems such as inflammation, boils, leucoderma, skin infections, worms, wounds, swellings, inflammation and piles. Medicines prepared from medicinal plants are either taken orally, or in direct forms, such as paste, powder, decoction etc. [6] Common skin infections include impetigo, boils, carbuncles, cellulitis, and complications from burns (Gelfand, 1984).^[1]

Medicinal plants are rich sources of antimicrobial agents. Prior to the development of Western medicine, traditional medicinal plants were used as remedies to cure various diseases including infectious diseases. Currently, most of the drugs that were isolated from

natural resources, including medicinal plants are used for treatment of various bacterial and other infections (Sarwat *et al.*, 2012). Plants are used medicinally and are widely used as ethnomedicine around the world in different countries as they are sources of many potent and powerful drugs (Srivastava *et al.*, 1996). A number of plants have been known for their biological (Grover *et al.*, 2002; Gajera *et al.*, 2005) and antimicrobial properties.^[1]

Traditional medicinal resources, especially plants have been found to play a major role in managing skin disorders. Plants are the only economic source of a number of well established and important drugs. In addition, they are also the source of chemical intermediates needs for the production of some drugs. Indian Materia Medica includes about 2000 drugs of natural origin almost all of which are derived from 3 different traditional system and folklore practices. WHO estimates that of the 35, 000 – 70,000 species of plants that are used for medicinal purposes around the world, Medicinal plants also play a major role and constitute the backbone of TM (Traditional System of medicine) practices. [4]

Of the many indications where traditional herbal medicines have been used, skin and skin related disorders rank among the top where up to one-third of these TM compared to 1-3% of modern drugs are used for treatment of wounds or skin disorders. Indeed, skin disorders are among the most prevalent in the world. Skin diseases occur worldwide and amount to approximately 34% of all occupational diseases encountered.^[4]

Table: Enumeration of medicinal plants used to cure various skin diseases.

S.N.	SCIENTIFIC NAME	COMMON NAME	FAMILY	PART USED	ETHNOBOTANICAL USES	REFERENCES
1	Anacardium occidentale L.	Kaju, Cashew nut tree	Anacardia ceae	Bark, fruit, leaf	Fruit-Oil used against worms. Fruit- Fruit of this plant, fruit of Ananus comosus and rhizome of Withania somnifera are ground with water and the juice thus obtained is taken orally to heal wounds.	[7] [8]
2	Averrhoe carambola L.	Karamanga	Averrhoac eae	Fruit, leaf, root, shoot, flower	Root-antidote in poisoning. Leaf and shoot-applied externally in ringworm, scabies, chickenpox. Flower-vermicidal. Fruit-laxative, antidysenteric, antiphlogistic, febrifuge, antiinflammatory, antispasmodic (used in hepatic colic, bleeding piles).	[9]

3	Bauhinia variegate L.	Rakta kanchana	Fabaceae , Caesapina ceae	Bark, leaf, root	Bark is wound healing and cures ulcers, swellings, leprosy; Bark is alterative and tonic useful in skin diseases and tumours, burning sensation.	[10]
4	Dalbergia sisoo Roxb.	Sisoo	Fabaceae	Seed, leaf, bark	Seeds- Sisoo oil is used to treat blue itching, burning on the skin, and scabies. Leaves-Leaves of Dalbergia sissoo are used for treatment of boils, Leaf,stem,bark-skin diseases,Bark, heart wood - Decoction of bark and heartwood are useful in skin diseases.	[11] [1] [12] [13]
5	Lawsonia inermis L.	Henna/mehe ndi	Lythracea e	Leaf, bark	Leaves - The leaves of <i>Lawsonia</i> inermis are mixed with olive oil and are used for furuncle treatment.	[1]
6	Modhuca longifolia (Koen.)Macb/ (Koenig.) Macoride	Mahua	Sapotacea e	Bark, leaf, flower	Seed oil-skin diseases, Bark - ulcers.	[9]
7	Plumeria rubra L.	Katha champa	Apocyana ceae	Leaf	Leaf -Scabies and stings from insect bites.	[14]
8	Ricinus communis L.	Jada	Euphorbia cea	Seed, root, leaf, fruit	Seed-Seed oil applied on itching portion, Root-root decotion is applied on skin diseases such as wart and wound twice a day till it is cured. Leaf-Fresh paste of leaf is applied for curing wound and carbuncle. The wormed root part is applied as a poulitice to cure boiles.	[15] [16]
9	Terminalia bellerica (Gaertn.) Roxb.	Bahada/bah era	Combretac eae	Seed, fruit	Seed-The oil obtained from the seeds is useful in skin disease, leucoderma and greyness of hair.	[17]
10	Tamarindus indica L.	Tentuli	Caesalpini aceae	Fruits, leaves, seeds flowers, barks	Leaf and Bark-Wound healer.	[18]
11	Tectona grandis L. f	Teak	Lamiaceae	Bark	Leaf-Leaves useful in skin diseases, leprosy. Seed-Seed paste applied to cure ringworm.	[19]
12	Azadirachta	Neemba	Meliaceae	Leaf,	Leaves-Leprosy, skin ulcer,	[20]

<u>www.wipr.net</u> Vol 4, Issue 05, 2015.

	indica A. Juss.			fruit, gum	Fruits -wounds and leprosy, Gum -Scabies, wounds, ulcers, skin diseases.	
13	Artocarpus heterophyllus Lam.	Panasha	Moraceae	Leaf, fruit, seed	Leaf-Leaf paste is applied over boils, cuts and wounds, and skin diseases.	[21]
14	Butea monosperma (Lam) Taub.	Palasa	Fabaceae	Leaf, flower	Flower-Decoction of flowers applied on the affected area of leprosy and other skin diseases. Flower mixed are used on boils Seed-seed if mixed with lemon juice and if applied on eczema and scabies, it gives relief. This paste also useful in white patches. Seed paste in water if applied on patches it gives relief. Leaf-leaf poultice is very useful in the treatment of boils, eruption, wounds, piles and swelling skin.	[22] [23] [24]
15	Cassia fistula L.	Sunari	Caesalpini aceae	Leaf	Leaf -Leaf paste is externally applied to cure eczema or other skin disease.	[22]
16	Pongamia pinnata L.	Karanja	Legumino sae	Leaf, Root	Seed- Seed oil is used to cure eczema and other skin infections.	[22]
17	Shorea robusta Roth.	Shala	Dipterocar paceae	Bark, leaf	Bark paste is used externally to cure cut, wound and ulcers.	[23]
18	Aegle marmelose L.	Bel	Rutaceae	Leaf, Seed, Fruit	Leaf and Seed- Paste of leaves and crushed seeds are applied on the affected parts to cure scabies and other similar skin diseases. Fruit- Young fruit is crushed with a piece of turmeric which is applied to cure ulcers.	[15] [25]
19	Diospyrous melanoxylon Roxb.	Kendu	Ebenaceae	Leaf	Leaf-skin diseases	[26]
20	Bombax ceiba L.	Simuli	Malvaceae	Bark	Bark and Root-Bacterial skin Infections, pimples and boils. Root-Root paste is applied externally in case of pimples.	[15] [25]
21	Mangifera indica L.	Aam	Anacardia ceae	Fruit, latex	Fruit and Latex -Immature fruit paste is used to treat skin rashes. Latex is applied to cure ulcers.	[25]
22	Phyllanthus embllica L.	Amala	Euphorbia ceae	Leaf	Leaf -Leaf power and oil mixed together and the paste is applied to cure burn wound.	[25]
23	Psidium guajava L.	Amrood	Myrtaceae	Leaf	Leaf -Leaf past is applied in case of itches and rashes.	[25]

<u>www.wipr.net</u> Vol 4, Issue 05, 2015.

24	Acacia catechu (L.f.)Willd.	Khair	Legumino ceae	Leaf	Leaf-Leaves Paste of leaf mixed with mustard oil is applied externally in case of skin diseases.	[23]
25	Acacia nilotica L.	Babool	Mimosace ae	Bark, leaf, seed	Bark, Leaf and Seed- Burn, Skin crack, Skin diseases, Small pox.	[27]
26	Mallotus philippensis (Lam.)	Sinduri	Euphorbia ceae	Fruit	Fruit -Red powder obtain from fruit mixed with coconut oil is applied externally a an antiseptic in skin diseases.	[28]
27	Ficus religiosa L.	Pimpal	Moraceae	Stem, bark, leaf, shoot	Stem-Stem bark power is used externally in case of pimples, itches and scabies. Leaf- Cuts and wounds. Stem bark, leaf, and young shoot pastes used to control bleeding from cuts and wounds.	[25] [21]
28	Cassia occidentalis L.	Ghoda Cahakonda	Caesalpini acea	Flower, leaf	Flower and Leaf-Flowers and leaf paste applied to cure skin infection.	[22]
29	Ficus bengalensis L.	Banyan tree	Moraceae	Bark, Seed, latex	Bark, Seed, Latex-Leprosy, Skin diseases, Ulcers. Bark- Bark powder is used externally to cure Scabies.	[27][23]
30	Santalum album L.	Chandana	Santalacea e	Leaf, bark	Leaf- Leaf paste is applied on allergic, skin diseases.	[29]
31	Terminalia cattapa L.	Badam/Alm and	Combratac eae	Leaves, bark, seed	Leaf-Powder of leaves with milk is used for itching and rashes. Seed-seed used as to cure scabies.	[4] [30]
32	Morinda citrifolia L.	Chaili (Lo.&Sa.),al .ach,Surangi (Ben.).	Rubiaceae	Root, fruit, leaf	Root-Root decoction for washing septic wounds. Fruit-Noni fruits were also used by Pacific Islanders to treat skin conditions, such as boils and ulcerated sores. Fruit and Leaffruits and leaves for treatment of healing sun-burn known as fohia skin as alluded to by Polynesian traditional healers.	[19] [31] [32]

Averrhoe carambola L.

Antimicrobial activity

The antibacterial activities of extracts from leaf and fruit parts of the plant *Averrhoa carambola* L. Methanol was used as solvent and antibacterial effect was measured using disc diffusion

test. The susceptibility of the microorganisms to the extracts of this plant was compared with standard antibiotic kanamycin. Fruit extract exhibited more potent antimicrobial activity against a wide variety of Gram-positive and Gram-negative bacteria compared to leaf extract. The antimicrobial activity was highest for the fruit extract against the Gram-negative *Salmonella paratyphi* (23.0 \pm 0.50 mm) and the Grampositive *Bacillus megaterium* (19.0 \pm 0.40 mm) bacteria, somewhat weaker against the *Staphylococcus aureus, Bacillus subtilis*, while with the leaf extract poor activity was observed against all 12 bacteria. Minimum inhibitory concentration (MIC) values were determined and it was found that the fruit extract was more potent against *Salmonella paratyphi, Salmonella typhi, Shigella dysenteriae* and *Vibro parahemolyticus*. [33]

Bauhinia variegate L.

Antimicrobial activity

Nodal segments from six years old plants of Bauhinia variegata L. were cultured on Murashige and Skoog,s (MS) medium supplemented with different concentration and combinations of BAP and IBA. Explants culture in MS basal medium supplemented with 5mg/1 BAP showed highest rate of shoot multiplication. When in vitro shoots were inoculated on the MS basal medium supplemented with IBA 2mg/l, profussed rooting was observed. The ethanolic extract of this plant was found to have antimicrobial activity against Bacillus subtilis (MTCC8), E. coli (MTCC1), Staphylococcus aureus (MTCC98), Salmonella typhi (MTCC737). The largest zone of inhibition (16 mm) was found against B. subtilis. The extract was found to be more effective against gram- positive than gram-negative bacteria. [34] The biological activities of the extracts of the medicinal plant Bauhinia variegata L. [BV], generated through in vivo and in vitro processes for their antibacterial activities. Nodal explants of BV when placed on MS medium fortified with 6-Benzyl amino purine (BAP) at 5µg/ml resulted into multiple shoots. These shoots, on transfer developed bunch of roots in presence of Indole-3-butyric acid (IBA) at 2-4 µg/ml. The methanol extracts of such regenerated in vitro plants along with that of natural in vivo garden plants on comparison were found to be more effective against gram positive bacteria when compared to gram negative bacteria. [35] The antibacterial activity of methanolic extract of *Bauhinia variegate* L. was evaluated according to the well diffusion assay using different isolates of gram G+ve and gram Gve bacteria which were isolate from Urain, septum and wound, and identified by bio chemical and api20E system. Two isolates were represented gram positive bacteria and twelve isolates of gram negative bacteria The plant extract was more active against G+ve isolates than G-ve isolates. The most susceptible G+ve isolates to the extract was *Staphyllococcus* aureus while *klebseilla pneumoiae* (G-ve) showed highest susceptibility to extract than other Gve isolates. The resistant isolates were Entero *Bacter aeroginosa*, *Enterobacter cloacae*, *Morexella catarrhalis* and *Serratia marcescens*. The antibacterial activity of extract was observed as broad spectrum activity against G+ve and G-ve isolates. [36]

Wound healing activity

The anticarcinogenic activity of *Bauhinia variegate* L. bark extract was evaluated using two stage protocol in skin papillioma model in *Swiss albino* mice. The significant prevention of papillomas in DMBA + *Bauhinia variegate* L. bark extract (500 and 1000 mg/kg body weight) + croton oil treated group was found to be effective in decreasing the rate of tumor incidence in comparison to the control. Furthermore, cumulative number of papillomas, tumor yield and tumor burden were also found to be reduced. The depleted levels of glutathione were restored in *Bauhinia variegate* L. bark extract treated groups. The study has revealed the chemopreventive role of *B. variegate* bark extracts against DMBA-induced skin carcinogenesis in mice. [37]

Skin carcinogenesis/ Wound healing activity

The chemopreventive action of *Bauhinia variegate* L. flower extract on 2-stage skin carcinogenesis, induced by a single topical application of 7, 12-dimethylbenz (a) anthracene (DMBA) (104 µg/ 100 µl acetone), and one weeks later, promoted by repeated application of croton oil (1% in acetone/twice in a week) till the end of the experiment (16 weeks) in Swiss albino mice. Single topical application of B*auhinia variegata* flower extract at a dose of 500 and 1000 mg/kg body weight along with DMBA + Croton oil was found to be effective in decreasing the cumulative number of papilloma, tumour incidence, tumour yield and tumour burden as compared to control (DMBA + Croton oil) group. The differences in the values of the results of experimental groups were statistically analysed and found to be significant in comparison to the control group (p<0.05). The depleted levels of glutathione were restored in *Bauhinia variegate* flower extract treated groups. The study has revealed the chemopreventive role of *Bauhinia variegate* flower extracts against DMBA-induced skin carcinogenesis in mice. [38]

Dalbergia sisoo Roxb.

Antimicrobial activity

The methanol, hexane extracts and isolated okanin from methanol extracts of *Dalbergia sisso* L. Roxb. Were exhibited good antibacterial activity towards various pathogens gram positive (*Micrococcus luteus* and *Staphlcocous aureus*) and gram negative bacteria (*Escherichia coli*, *R. planticola* and *Acinetobacter*). The finding suggests more research would be required for presence of new phytoconstituents.^[39]

Lawsonia inermis L.

Antimicrobial activity

The chloroformic extract of henna at 3 and 4 (V/V %) completely inhibit the growth of Malassezia. Methanolic extract of henna at 0.25 and 3 (V/V %) inhibit the growth of Malassezia. Aqueous extract of henna at 0.25, 0.5, 4 (V/V %) completely inhibit the growth of Malassezia. Miconazole nitrate as standard antibiotic in almost all concentrations has completely inhibitory effect on Malassezia. The results demonstrated that henna has antifungal activity against Malassezia. In addition aqueous extract is more effective on Malassezia than methanolic and chloroformic extracts. [40] The antimicrobial activity was evaluated according to the disk diffusion method by using Gram positive; B. subtilius, S. aureus and S. epidermidis and Gram negative; E. coli, S. flexneri, P. aeruginosa bacteria. This study show that methanolic leaves extracts of Lawsonia inermis L. inhibit the growth of micro organisms dose dependently. These results confirm the antibacterial activity of Lawsonia inermis L. leaves and support the traditional use of the plant in therapy of bacterial infection. [41] The antimicrobial activity of Lawsonia inermis L. against some human pathogens. Henna leaves were extracted with methanol, ethanol and aqueous by solvent extraction method. By this study, the pathogens are isolated from wound sample. The isolated organisms were identified based on cultural, morphological and biochemical characteristics. Hence, the isolated bacterial isolates were confirmed as S.aureus, S.mutans, P.aeruginosa and fungal isolates such as A.niger, A.flavus and Fusarium. In this study, antimicrobial activity was performed by disc diffusion and well diffusion method. The maximum activity was showed in methanol extraction against all isolated human pathogens. In this ethanol extraction also shows maximum activity (100%). There was no activity in aqueous extract. This result may open important perspectives alternative antimicrobial therapies. [42]

Modhuca indica (Koen.) Macb/ (Koenig.) Macorid Antimicrobial activity

The antimicrobial activity of *Madhuca indica* (Koen.) Macb leaf extracts against some pathogenic microorganisms such as bacteria and fungi. Antimicrobial activity tests were performed by Agar well diffusion method against three bacterial strains viz. *E. coli, Pseudomonas, S. aureus*, and three fungal strains viz. *Aspergillus niger, Penicillium spp., Scytalidium spp. Modhuca indica* showed highest inhibition in case of *S. aureus* and then *E. coli*. In case of fungal strains showed negative tests for *A. niger* and *Penicillium spp.*, but for *Scytallidium spp. Modhuca indica* showed positive result from the concentration of 40% i.e. 0.5cm followed by 60% and 80%. [43]

CONCLUSION

The present review clearly revealed that nature provides huge number of plants that show significant skin healing activities. These natural agencies are rich target for the development of alternatives to synthetic drugs. The combination of traditional and modern knowledge can produce better drugs for skin healing with fewer side effects. However, there is a need for scientific validation, standardization and safety evaluation of plants of the traditional medicine before these could be recommended for healing of the skin diseases. From the above discussion, the findings of the study envisage that the herbal medicine have great potentiality to cure different kinds of skin disease. The indigenous rural community depends on traditional healthcare system. About 80% of human population in India is using herbal medicine to cure different kind of disease. The herbal medicines are generally free from side effect. Tribal people should be made aware about the value of their indigenous knowledge and erroneous method of plant collection and their seasons of growth, reproduction and dispersal. Traditional system of medicine has rich collection of herbs for the treatment of various acute and chronic ailments. Skin disease stands as one of the leading health problem worldwide especially in developing countries like India. The herbs in traditional system are having least side effects, proven to be useful for the management of skin and skin diseases and the above told plants broadly used by traditional practitioners. From this review it should be evident that there are many traditional plants which can successfully handle many skin diseases science there endowed with potent antimicrobial activity.

REFERENCE

1. Gul Farah, Khan Zabta, Afzal Shinwari and Imran. Screening of indigenous knowledge of herbal remedies for skin diseases among local communities of North westPunjab, Pakistan. Pak. J. Bot., 2012; 44(5): 1609-1616.

- 2. Tabassum Nahida, Hamdani Mariya . Plants used to treat skin diseases. A publication of phcog.net. Pharmacognosy Review, 2014; Volume: 8, Issue: 15: 52-60.
- 3. Dawid-Pac Renata. Review: Medicinal plants used in treatment of inflammatory skin diseases. Postep Derm Alergol, 2013; XXX, 3: 170–177.
- 4. Samraj K, Thillaivanan S, Parthiban P, Samraj K. A review of beneficial effects of medicinal plants on skin and skin diseases. IJPRBS, 2014; Volume 3(1): 93-106.
- 5. Kaup Soumya and Sankarankutty Jaya. Prevalence and antimicrobial susceptibility patterns of bacteria isolated from skin and wound infections. Microbiol. Biotech. Res., 2014; 4 (2): 39-45.
- Mughal Sheher Bano, Arshad Noshia, Shoaib Muhammad, Irum Nukhba and Hussnain Nigam. Ethnobotanical Literature Survey of Plants Used to Cure Skin Diseases. World Applied Sciences Journal, 2013; 27(4): 474-478.
- 7. Francis Xavier T, Arun V. R and Freeda Rose A. Ethnopharmacological studies on the medicinal plants used by tribal inhabitants of meenagadi region in wayanadu district of Kerala, South India. International Journal of Medicinal Plant Research, 2012; Vol. 1 (5): 058-062.
- 8. Ayyanar M, Ignacimuthu S. Herbal medicines for wound healing among tribal people in Southern India: Ethnobotanical and Scientific evidences. International Journal of Applied Research in Natural Products, 2009; Vol. 2(3): 29-49.
- 9. Rajkumar M. H. and Rajanna M. D. Ex-situ conservation of climbing plants at university of Agricultural sciences, bangalore, Karnataka. Recent research in science and technology, 2011; 3(4): 18-20.(ref a v 26)
- Gitte TA, Kare MA and Deshmukh AM. Ethno- medicinal studies on barks of some medicinal plants in Marathwada (M. S.), India –I. Recent Research in Science and Technology, 2012; 4(10): 08-10.(b v 30)
- 11. BharathM, Laxmi rama tulasi E, Sudhakar K and Chinna eswaraiah M. Dalbergia sissoo dc. an important medicinal plant. International journal of research in pharmacy and chemistry, 2013; 3(2): 384-388.
- 12. Biswas Animes, Bari MA, Roy Mohashweta & Bhadra SK. Inherited folk pharmaceutical knowledge of tribal people in the Chittagong hill tracts, Bangladesh. India Journal of Traditional Knowledge, 2010; Vol. 9(1): 77-89.
- 13. Johnsy G, Davidson sargunam S and Kaviyarasan V. Indigenous knowledge of medicinal plants used for the treatment of skin diseases by the kaani tribe of kanyakumari district.

- International Journal of Pharmacy and Pharmaceutical Sciences, 2012; Vol 4, issue 1: 309-313.
- 14. Neysa MA, Teatulohi MATAINAHO, Prem P. RAI and Louis R. Barrows. Antimicrobial activity of endophytes in six medicinal plants collected in the central province, papua new guinea. Pacific Journal of Medical Sciences, 2013; Vol. 11, No 2: 57-69.(p.r 1.5)
- 15. Kumar Sanjeet, Jena PK, Sabnam S, Kumari M and Tripathy PK. Study of plants used against the skin diseases with special reference to Cassia fistula L. among the king (Dongaria Kandha) of Niyamgiri: A primitive tribe of Odisha, India. International Journal of Drug Development & Research. 201p; Vol. 4, Issue 2:474-478.
- 16. Tripathy SC and Sribastava Manjulla. Ethnomedicinal flora of Euphorbiaceae used in dermatological problems. Indian journal of Traditional Knowledge, 2010; Vol.9 (2): 318-320.
- 17. Sinhababu Arijit, Banerjee Arpita. Ethno-botanical Study of Medicinal Plants Used by Tribals of Bankura Districts, West Bengal, India. Journal of Medicinal Plants Studies, 2013; Volume: 1, Issue: 3: 98-104.
- 18. Havinga RM, Hartl A, Putscher J et al. Tamarindus indica L. (Fabaceae): patterns of use in traditional African medicine. Journal of Ethnopharmacology, 2010; 127: 573-588.
- 19. Das Pijush Kanti and Mondal Amal Kumar. Biodiversity and Conservation of Some Dye Yielding Plants for Justification of its Economic status in the Local areas of Lateritic Zone of West Bengal, India. Advances in bioresearch, 2012; Volume 3, Issue 1: 43-53.
- 20. Asif Mohammad. A Review on Spermicidal Activities of Azadirachta indica. Journal of Pharmacognosy and Photochemistry, 2013; Volume 1 Issue 5: 61-79.
- 21. Singh Anant Gopal and Hamal Jaya Prakash. Traditional phytotherapy of some Medicinal plants used by tharu and Magar communities of western Nepal, Against dermatological disorders. Scientific World, 2013; Vol. 11, No. 11: 81-89.
- 22. Kumar Sanjeet, Jena PK, Sabnam S, Kumari M and Tripathy PK. Study of plants used against the skin diseases with special reference to Cassia fistula L. among the king (Dongaria Kandha) of Niyamgiri: A primitive tribe of Odisha, India. International Journal of Drug Development & Research, 2012; Vol. 4, Issue 2: 256-264.
- 23. Jatav Ramdaya and Meheta Rakesh. Study of medicinal plants used in dermatological Problems with special reference to sahariya tribe of Shivpuri district of madhya pradesh. Indian Journal of Applied Research, 2013; Volume: 3, issue: 8: 60-61.

- 24. Zahid IH, Bawazir AS, Naser Rafiuddin. Plant based native therapy for skin problems in Aurangabad district (M.S.). Journal of Pharmacognosy and Phytochemistry, 2013; Vol. 2 No. 1: 241-244.
- 25. Korpenwar A. Ethnomedicinal Plants Used To Cure Skin Diseases In Ambabarwa Wild Life Sanctuary Area Of Buldhana District (M.S.), India. International Journal of Recent Trends in Science And Technology, 2012; Volume 2, Issue 3:36-39.
- 26. Dubey Debasmita, Sahu Mahesh C, Rath Shakti, Paty Bimoch Projna, Nagen Debata K, Padhy Rabindra N. Antimicrobial activity of medicinal plants used by aborigines of Kalahandi, Orissa, India against multidrug resistant bacteria. Asian Pacific Journal of Tropical Biomedicine, 2012; 846-854.
- 27. Rahul Jitin. An Ethnobotanical Study of Medicinal Plants in Taindol Village, District Jhansi, Region of Bundelkhand, Uttar Pradesh, India. Journal of Medicinal Plants Studies, 2013; Volume: 1, Issue: 5: 59 -71.
- 28. Shukla Achuta Nand, Srivastava Sharad & Rawat A K S. An ethnobotanical survey of medicinal plants of Rewa district, Madhya Pradesh. Indian journal of traditional knowledge, 2010; Vol. 9(1): 191-202.
- 29. Maurya Santosh kumar, Seth Ankit. Potential medicinal plants and trditional ayaurvedic approach towards urticaria, An allergic skin disorder. International journal of pharmacy and pharmaceutical sciences, 2014; Vol 6, issue 5: 172-177.
- 30. Sharma MC and Joshy Chinmay. Plant used in skin diseases of animal. Natural product radiance, 2004; Vol3 (4): 293-299.
- 31. Whistler, Polynesian WA. Herbal Medicine. National Tropical Botanical Garden Lawai, Hawaii, 1992; 173-174.
- 32. Afa K Palu, Shixin Deng, Brett J. West, Jarakae Jensen and Rachel A. Sabin. Sunburn (fohia) Healing Effects of Noni: Is it a Mechanism Involving Its Inhibitory Effects on MMP, COX-2 and Cat-G Enzymes? Journal of Applied Pharmaceutical Science, 2012; 02(08): 40-50.
- 33. Das Sreedam Chandra, Sultana Shapna, Roy Sumon, Hasan Sheikh Sayeed. Antibacterial and cytotoxic activities of methanolic extracts of leaf and fruit parts of the plant Averrhoa bilimbi (oxalidaceae). American journal of scientific and industrial research, 2011; 2.4: 531.536.
- 34. Kumari Madhu .Evaluation of ethanolic extracts of in vitro grown Bauhinia Variegata For antibacterial activities. Int J Pharm Bio Sci, 2012; 3(4): 43 50.

- 35. Sinha Kanak and Verma Anita K. Evaluation of Antimicrobial and Anticancer activities of Methanol Extract of in vivo and in vitro grown Bauhinia variegata L. International Research Journal of Biological Sciences, 2012; Vol. 1(6): 26-30.
- 36. Emad M Rasheed, Madiha H Hussain, Janet A Misak. Evaluation of activity of alcoholic extract of Bauhinia variegate against some G+ve & G-ve. Euphrates Journal of Agriculture Science, 2013; 5 (1):36-43.
- 37. Pandey Sonam and Agrawal RC. Effect of Bauhinia Variegate Bark Extract on DMBA-Induced Mouse Skin Carcinogenesis: A Preliminary Study. Global Journal of Pharmacology, 2009; 3 (3): 158-162.
- 38. Pandey Sonam and Agrawal RC. Chemopreventive Potential of Bauhinia variegata Flower Extract Against DMBA-induced Skin Papillomagenesis in Mice. Pharmacologyonline, 2010; 1: 39-46.
- 39. Behera Padma C, Verma SM, Kumar Posa Mahesh, Das Nalin B, Mishra Pravat M and Baliarsingh Sasmita. Anti-Inflammatory and Anti-Microbial Activity of Chalcone from Dalbergia Sissoo Roxb. Leaves. American Journal of Phytomedicine and Clinical Therapeutics, 2013; 2: 186-194.
- 40. Berenji Fariba, Rakhshandeh Hassan, Ebrahimipour Homeyra. In vitro study of the effects of henna extracts (Lawsonia inermis) on Malassezia species. Jundishapur Journal of Microbiology, 2010; 3(3): 125-128.
- 41. Raja Wasim Ovais M and Dubey Amit. Phytochemical Screening and Antibacterial Activity of Lawsonia inermis Leaf Extract. International Journal of Microbiological Research, 2013; 4(1): 33-36.
- 42. Kannahi M and Vinotha K. Antimicrobial activity of Lawsonia inermis leaf extracts against some human pathogens. Int.J.Curr.Microbiol.App.Sci, 2013; 2(5): 342-349.
- 43. Sarwey Uma, Pandey Bhawana and Deshpande Bhagyashri. Estimation of elemental contents of Modhuca longifolia and its antimicrobial activity against various pathogenic microorganisms. Ind. J. Sci. Res. and Tech., 2013; 1(3): 10-17.