

Phytotherapy of Skin Disease by Plants of Patalkot and Tamiya

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ABSTRACT: *The authors reports in this paper the usefulness of some plants of chindawara, Madhya Pradesh in curing superficial mycosis.*

INTRODUCTION:

Usually ethnomedicinal studies have contributed the discovery of new herbal drugs. India with its rich flora and tribal population afford immense scope for studies pertaining to various aspect of traditional medicines (Sebastian and bhandari, 1984). Jain (1065) who is known as the father ethnobotany in Indian initiated first ethnomedicinal explorations, Man from prehistoric times has ;been dependent on nature for medicines, His dependence on plant for the treatment of diseases is supported by the fact that majority of the drugs described in Ayurveda is of plant origin. Around the world traditional healers using plant mediciations provide primary health care to the 80 per cent of the word population. Out of billions of people, very few of the thousands of traditional plants have been investigated for their antimycotic activity. A large part of the population of our country inhabits in the remote villages, particularly the tribal people residing in the rich forest areas, are still treeting their diseases with the help of traditional medicines expecially pants available in their suburbs, but the knowledge is being lost because of rapid progress of allopathic medicines and mod ernization of the tribes. Medicines of plant origin together with conventional medicinal herb can only serve the common goal of health for all in 2000

A.D but despite the tremendous use of medicinal natural produce, little efforts have been made to insure a benefit to th4 health and economy of local communities. As a result, there is little in centive to consume these plants.

SUPERFICIAL MYCOSIS AND THERAPY

The pathogenic fungi that affect merely the cornified layers of the epidermis and the suprafollicular portion of hair are included in superficial mycosis. In otherwords, in superficial mycsis the skin, the hair and the nails are involved. The causal pathogens include the dermatophytes. Superficial infection caused by dermatophytes are clinically termed as tineas, are the most common form of fungal infections. The term tinea was used for the clothes moth. In fact, the generic name of various species of the keratin destroying moths is tinea. The holes made by moths in woolen garments were ring-like which akins to lesions caused by spermatophyte. Thus, the word ringworm was coined for these infections are least as for back as the 16th century. The term describes the form of the lesions and relates it to the Raman tinea. The tinea infections are classified clinically on the basis of body region involved. The

pathogenic dermatophytes possess certain enzymes which enables them to digest keratins (Yu et al, 1969). These keratinize epithelial horny layer of the epidermal and the epidermal appendages. Emmons (1934) classified dermatophytes as below:

Epidermophyton Sabouraud, 1910

E. floccosum (Harz, 1970) Langeron & Milochentch, 1930 Microsporum Gruby, 1843.

M. audouinii Gruby, 1898) Sabouraud, 1910

M. equinum (Bodin, 1898) Sabouraud, 1910)

M. felineum Mewborn, 1902

M. gallinae (Magnin, 1881) Grigorakis, 1929

M. gypseum (Bodin, 1907) Guiart & Grigorakis 1928

M. quinckii (Zopf, 1890) Guiart & Grigorakis, 1928

Trichophyton malmsten, 1845

T. album Sabouraud, 1909

T. concentricum Blachard, 1895

T. epilans Boucher & Megnin, 1887

T. ferrugineum (Ota, 1921) Langeron & Milochentch, 1930

T. megninii Blanchard, 1895

T. mentagrophytes (Robin, 1853) Blachard, 1895

T. rubrum (Castellani, 1909) Sabouraud, 1911

T. sabouraudii Blachard, 1895

T. schoenleinii (Lebert, 1845) Langeron & Milochentch, 1930

T. sulfureum Fox 1908

T. tonsurans Malmsten, 1845

T. violaceum Sabouraud, 1902 (Apud Bodin, 1902)

On the basis of host, the species have been classified as geophilic (inhabitant of soil), which included M. gypseum, T. ajeolli and T. terrestre, the zoophytes (e.g M. canis, T. mentagrophytes and T. verrucosum) are commonly found on animals, but may cause human infections. The anthropophilic species, e.g M. audouinii, E. floccosum, T. rubrum, T. tonsurans T. violaceum grow almost exclusively on human being and infection is transmitted from man to man.

Besides dermatophytes, malassezia furfur the causative agent of pityriasis versicolor and infection caused by candida are included in superficial mycosis, pityriasis versicolor is usually restricted to the outermost stratum corneum. The candida infection are not merely cutaneous but may be subcutaneous, mucocutaneous or systemic.

The treatment of superficial mycosis is a challenge before the clinicians and dermatologists. Many antimycotic agents were introduced into medical treatment during recent years. Most of these active agents are only useful for topical application because of their toxic nature. They are broad spectrum antimycotic which are effective in the fungi that infect human beings. In the treatment of mycosis, this kind of active agent is preferred because here a broad spectrum therapy is required (Emmott & Marrs, 1973; Gellin et al 1972 and Tronier et al 1984. Allergic reactions of the

skin are increasing day to day. The reason is a higher rate of sensitization power of these antimycotic agent, ringworm infections are generally treated by tropical antimycotics, usually by the use of a drug belonging to the imidazole family. But these potent antimycotics are in the hands of rich. Hence, to combat mycosis steps should be taken to make the benefits of successful pharmaceutical research available to all and especially to those who are in the greatest need, in fact it is the need of the hour to search for new antifungal agents of herbal origin which are relatively cheaper safer and easily available to common - man more over some times imidazole derivatives are not effective owing to which alternative drugs are required (Lowey et al, 1985). A perusal of literature indicates that many investigators have reported fungistatic and bacteriostatic properties of extract of higher plants (Singh and sharma, 1970, shokhawat and prasada, 1971, Khanna and Chandra, 1972, Wollman and Habicht, 1973, Acharya and chaterjee, 1974, Ray and Majundar, 1975; Tansey and Appleton, 1975, Gupta, 1976; Jain and Agrawal, 1976; Banerjee and Nigam, 1976; Kher and chourasia 1977. Misra and Dixit, 1977 satyanarayana and Rao, 1977; sharma and goutam, 1977, shama and singh, 1979; Goutam et al., 1980 Deshmukh and jain, 1981; Barde and singh, 1983; Ikram and Haq 1984; Rai 1987,1988). But this knowledge is being lost because of rapid progress of young people to cities in search of employment. The medicinal plants have been screened in vitro against locally isolated strains of fungi causing mycosis.

Screening of Indian plants for a wide range of activity (antimalarial antiprozoic, antiviral, antihelminthic anticancer, antifungal, etc) have been carried out by various investigators (Dhar et al. 1968; Bhakuni et al., 1969; Bhakuni et al 1971; Dhar et al 1973; Dhar et al 1974 Dhawan et

al., 1980 Aswal et al 1984 Abraham et al., 1980; Aswal et al 1984 Abraham et al., 1986). However, Bhakuni et al ., (1977) reported that antifungal activity could be observed only on extract of new plants out of 300 plants which indicates that more thorough investigations are required for search of medicinal plants and also for their antimycotic activity.

The investigators of CAMP have screened about 3,231 materials from 3,051 plants for their biological activity (Bhakuni et al., 1969; Bhakuni et al., 1977; Dhar et., 1973; Dhawan et al., 1977; Dhawan et al., 1980; Aswal et al. 1984 a,b). Only 10 plants exhibited activity against pathogens of superficial mycosis.

PHYTOTHERAPY OF SKIN DISEASE

Chhindwara, a district place in Madhya Pradesh is also rich in medicinal plants, patalkots, Tamiya Harrai and Bicchua are rich pockets of medicinal plants (Nonhare and Rai, 1991). These places are chiefly inhabited by Gond and Bharia tribes. The tribal people still use ethnomedicinal plants. AXENA AND Shukla (1971) probably gave first account of medicinal plants of patalkot and Tamiya. They reported 256 medicinal plants from patalkot and tamiya. A survey of literature indicates that so far, a significant contribution have been made on folk medicine in madhya Pradesh in general, and chhindwara district in particular (Jain, 1962-1963; Sahu, 1982, Sahu et.al., 1983; rai 1985, 1987 and Maheswari and Dwivedi, 1988). Some plants used in skin diseases are given below:

1. *Angiopteris erecta* (Forst) Hoffm

Family - Polypodiaceae
Local Name - 'Thengi' Ghodatap'

Claim - Rhizome is used externally in leprosy.

2. Argemone mexicana Linn

Family - Papaveracea
Local Name - Peela Dhatura' peeli Kateri
Claim - The decoction of panchang' (root, stem, leaves, flowers and seeds) is used against skin diseases.
Sometimes only root is used against ringworm or eczema.

3. Azadirachta indica A Juss.

Family - Meliaceae
Local Name - 'Neem'
Claim - All the parts of the plant are used in skin diseases. The people suffering from skin disease eats leaves of this plant and take bath with extract of leaves.

4. Calotropis procera Linn.

Family - Asclepiadaceae
Local Name - Akona or madar
Claim - Milk (Latex) of the plant I used externally in skin disease.

5. Cassia tora Linn

Family - Caesalpiniaceae
Local Name - 'Teeti', or Panwar'
Claim - The tribal folk eat leaves as vegetable during rain season. The seeds are powderd and used against skin disease.

6. Centella asiatica Linn

Family - Apiaceae
Local Name - 'Bramhi' or patalgadi
Claim - The juice of the leaves is used in skin diseases.

7. Cicer arietinum Linn

Family - Fabaceae

Local Name - 'Chana'
Claim - the seeds are used in skin diseases in powder form.

8. Cuscuta reflexa Roxb.

Family - Cuscutaceae
Local Name - Amarbel
Claim - The whole plant is crushed and paste/juice is used against pityriasis versicolor, a causal organ ism of 'Seuaa' (Small white spots).

9. Derris indica (Lamk) bennet

Family - Fabaceae
Local Name - 'Karanj/Kanji'
Claim - Oil is applied on ring worm, eczema and other skin disease.

10. Euphorbia neriifolia Linn.

Family - Euphorbiaceae
Local Name - 'Thuar'
Claim - the juice of the leaves is used in various skin disorders

11. E. thymifolia Linn

Family - euphorbiaceae
Local Name - Chhoti Dudhi
Claim - Latex of the plant is used in ringworm.

12. Jatropha curcas Linn.

Family - Euphorbiaceae
Local Name - Chandrajyoti/Chandarjote
Claim - the paste of the leaves and latex (Milk) are used in various skin diseases.

13. leucas aspera spreng

Family - Lamiaceae
Local Name - Chhota Halkusa'

Claim - The leaves are used in skin diseases.

14. L. zeylanica R. Br.

Family - Lamiaceae
Local Name - Chhota Halkusa'
Claim - the juice of the leaves in used in skin diseases.

15. Ocimum canum R.Br.

Family - Lamiaceae
Local Name - Jangli Tulsi
Claim - The leaves are used in skin diseases.

16. O.sanctum Linn

Family - Lamiaceae
Local Name - Kali Tulsi
Claim - The paste of leaves in mixed with salt and up plied externally on the or gans affected from ring worm.

17. Phyllanthus fraternus Webster,

Family - Euphorbiaceae
Local Name - 'Bhuimli'
Claim - The root paste is used in leprosy.

18. Plumbago zeylanica Linn

Family - Plumbaginaceae
Local Name - 'Chitawar'
Claim - Seeds are powdered and applied externally on boils

19. Psoralea corylifolia Linn

Family - Fabaceae
Local Name - Bebchi
Claim - The powder of seed is applied externally on leprosy.

20. Sigesbeckia orientalis Linn

Family - Asteraceae
Local Name - Katampan
Claim - The paste is used in skin diseases.

21. Woodfordia fruticosa (L) Kurz

Family - Lythraceae
Local Name - 'Dhavai'
Claim - The juice of the leaves is used in skin diseases.

22. Xanthium strumarium Linn

Family - Asteraceae
Local Name - 'Gokhru'
Claim - The seed oil is applied externally on boils.

EVALUATION OF ANTIMYCOTIC POTENTIAL

a) Activity of some drugs tested singly

In the present investigation various plants/plant parts were tested against fungi causing ringworm in humanbeings viz.,

Trichophyton mentagrophytes and Epidermophyton floccosum. The plants included were ageratum coenzoides, Amaranths viridis, Argemone mexicana, antocarpus heterophyllous, Asparagus racemosus Azadirachta indica, Bryophyllum pinnatum, calotropis procera, catharanthus roseus, citrus medics, cuscuta reflexa, Datura alba, Derris indica, ficus bengalensis, Madhuca indica nerium odorum Ocimum sanctum Nyctanthes, arbor tristis parthenium hysteriphorus, psoralea corylifolia Rauwolfia serpantina, santalum album sapindus trifoliatus swertia chirata tephrosia purpurea trdiac procumbans terminalisa rjuna, Vanda roxburghii, woodfordia floribunda,

It was recorded that maximum antimycotic activity was exhibited by leaves of parthenium hysterophorus followed by leaves of nerium indicum and bark of woodfordia floribunda, leaves of terminals arjuna, stem bark of maduca indica, leaves of rauwolfia serpentine and whole plants of asparagus racemosus. Other plants showed antifungal activity were catharanthus roseus followed by phyllanthus emblica tridax procumbans Nyctanthes arbor-tristis datura alba and Pongamia pinnata. Rest of the plants tested in the present investigation showed comparatively low activity. The minimum activity was shown by leaves of A. viridis followed by A. coenzoides when tested against T. mentagrophytes and E. floccosum. Jain and Agrawal (1978) reported that seed oil of P. pinnata was much effective against some keratinophilic fungi. In the present investigation also seed extract of P. pinnata showed antimycotic activity against T. mentagrophytes and E. floccosum. Its enthomedicinal use against skin disease is well established (Sebastian and Bhandrai, 1984).

Interestingly two plants, viz., leaves and stems of A. viridis and leaves and flowers of Tephrosia purpurea did not inhibit the growth of T.mentagrophytes and E. floccosum. Instead, the growth was accelerated.

It was also observed that the inhibition of growth was higher in Epidermophyton floccosum in comparison to Trichophyton mentagrophytes which indicates that E. Floccosum is relatively more sensitive to the various plant extracts tested in the present investigation.

It may be concluded from the above discussion that the antimycotic activity of medicinal plants tested is due to active principles present in them. These plants

should be analysed and their active principle(s) may be tested against various fungi in vitro and in vivo if found active.

b) COMBINATION OF HERBAL AND SYNTHETIC DRUG

There are various antibiotics available in the market. Some antibacterial agents include-erythromycin, streptomycin, ampicillin, amoxicillin cyclosporine tetracycline etc. the drugs prove to be much effective, if used in combination with other drugs (Barry, 1976). Ocimum sanctum of family lamiaceae is well known plant, and is used in various disease, Chopra et al (1956) found that Ocimum americanum is used in the treatment of skin disease. The active principle present in O. americanum were eugenol geraniol and methyl heptanone which were much effective against plus (+) and minus (-) strains of Microsporium gypseum complex (Nannizzia fulva, N. gypsea and N. incurvata and other pathogens (Jain and Agrawal, 1978; Jain et al, 1980).

Four drugs, viz., cephalixin, ampicillin, amoxicillin, benzene and tetracycline were selected for antimycotic activity in combination of extract of O. canum. The maximum fungitoxic activity was shown by extract of O. sanctum when tested in combination with tetracyclines against T. mentagrophytes and E. floccosum. The moderate activity was exhibited in combination with amoxicillin and extract of O. sanctum followed by ampicillin and extract of O. sanctum whereas least antimycotic activity was noted in combination of extract of O. sanctum and cephalixin. It was interesting to note that growth of both the pathogens, viz. T. mentagrophytes and E. floccosum was accelerated with benzene. E. floccosum was more sensitive to combination of amoxicillin and extract of O. sanctum in comparison to

sensitivity of *T. mentagrophytes* it may be concluded from the above discussion that extract of *O. sanctum* would be much effective against infections caused by *T. mentagrophytes* and *E. floccosum* if tested topically and orally as well.

RESEARCH NEEDS

1. A thorough search for ethnomedicinal plant used in skin diseases should be made.
2. More and more herbal drugs should be evaluated for their antimycotic activity.
3. There is an urgent need to set up a Herbal Research Centre in Chhindwara.

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4. The promising plants should be analysed for the search of active principles present in them.

5. In vivo evaluation of drugs in experimental animals should be made.

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