International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 2 Mar-Apr 2023, pp: 1474-1482www.ijprajournal.com ISSN: 2249-7781

Review of Dendrophthoe Falcata

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I. INTRODUCTION:

Fig.DENDROPHTHOE FALCATA

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 2 Mar-Apr 2023, pp: 1474-1482www.ijprajournal.com ISSN: 2249-7781

Dendrophthoefalcata is also known as "**Vanda**" in the Indian Ayurvedic system of medicine. Dendrophthoefalcata (L. f.) ettingsh is a perennial parasitic woody climber. It comes from tropical areas especially in India, Sri Lanka, Thailand, China, Australia, Bangladesh, Malaysia and Myanmar. It is widely distributed throughout India[1]. It is a semi-parasitic plant whose whole plant is used in indigenous medicine as a potential medicinal agent as cooling, bitter, astringent, aphrodisiac, narcotic and diuretic and is useful in pulmonary tuberculosis, asthma, menstrual disorders, swelling of wounds, ulcers. , kidney and vesical calculi and defective kapha and pitta conditions. A decoction of the plant is also used by women as an anti-fertility agent, it also has anticancer activity. A paste of the leaves is used in skin diseases. Its paste is applied to ulcers, setting dislocated bones and drawing out pus. The plant has been scientifically proven to have antilithiatic, diuretic, cytotoxic and immunomodulating effects. A large, bushy, evergreen, parasitic plant with smooth gray bark; young parts glabrous or nearly so.[2].

There has been an explosion of scientific information concerning plants, crude plant extracts and various substances from plants as medicinal agents during last 20 – 30 years. Although herbal medicine has existed since the dawn of time, our knowledge of how plants actually affect human physiology remains largely unexplored. Numbers of plants are claiming various medicinal uses and many researches are going on in this view. Among them parasitic plants are well known.{3} One can categorize parasitic plants according to their evolutionary relationships or according to their nutritional mode. Among the various unrelated families of parasitic plants, two basic types of parasitism exist: hemi parasites and holo parasites.

Hemi parasites are chlorophyllus and photosynthetic (at least during some portion of the life cycle) yet they obtain water and nutrients via haustorial connections to the host plant. Hemi parasites can be further divided into two types, facultative and obligate, depending upon their degree of dependence upon the host. Facultative hemiparasites do not require a host to complete their life cycle but are photosynthetic and, when presented with host roots, invariably form haustorial connections. When attached to host roots, these parasites extract water and dissolved minerals via direct, cell-to-cell connections to the xylem. Facultative hemiparasites can be found in several root-parasitic families. Obligate parasites require host plant through out its life. Obligate parasites are again of two type primitive parasites and advanced parasite. Dendrophthoefalcata (L.f) Ettingsh, belonging to family Loranthaceae is a primitive subtypeobligate parasite. This is a chlorophyllous, photosynthetic, stem parasite and xylem feeder only

[4].

There are 20 different species belonging to the genus Dendrophthoe found all over the world, seven of which are found in India. The hemiparasite, Dendrophthoefalcata (L. f.) Ettingsh is one of the seven species present in India. Hemiparasites have been reported to exist on more than 300 host plants [4]. They are also known as potential pests, due to the severe damage which they cause to many economically important plants. In this review, a comprehensive account of morphology, tissue culture, phytochemistry, ehthnomedicinal uses and pharmacological activities are included in view of the many recent findings of importance on this plant.[5]

Hierarchy of Dendrophthoefalcata (L.f.) Ettingsh

Kingdom–Plantae
Phylum -Angiosperms
Class -Mognolitae
Sub class-Rosidae
Order - Santalales
Family - Loranthaceae
Genus - Dendrophthoe
Species- Falcate[6]

Vernacular Names:

English – Loranthus
Sanskrit – Vando
Hindi– Banda
Bengali – Baramanda
Tamil – Pulluri
Gujurati– Vando
Punjabi – Banda
Telugu – Badanika, Jiddu
Oriya – Bridhango

Description :

a) Macroscopy

Leaves: Petiolate, exstipulate, opposite, decussate, simple, ovate to oblanceolate, glabrous, soft and leathery when young, brittle when dry; margin entire; base decurrent; apex acute; slightly astringent; odour resembling those of tea leaves.[8]

Stem: Small twigs of aerial branches ranging from 2 mm to 2.5 cm in thickness; the bark of stem thin,

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 2 Mar-Apr 2023, pp: 1474-1482www.ijprajournal.com ISSN: 2249-7781

dark brown and specked with lighter brown, uniformly distributed lenticles; the wood reddish-brown after removal of thin bark; stem slightly rough to touch; fracture irregular; fractured surface dark brown; no distinct taste or odour.[9]

Root: Adventitious root greyish brown outside, yellowish to brown inside, slender, contorted and knotty in appearance, sending out haustoria into the host plant or, also into its own branches; rarely branched; fracture, irregular; odour and taste not distinct.[10]

Flowers: Actinomorphic, bisexual, regular, complete, coloured, apetalous, epigynous with cup or disc shaped receptacle, pentamerous; perianth-tepals 5, free and strap shaped towards the distal end and in the form of a sickle-shaped tube towards the basal end; surrounded at the base by a cupshaped calyx; the perianth tube measures about 40 to 55 mm in length; it is narrow at the base and gradually widens towards the upper part; the perianth lobes become strongly reflexed at maturity. Inside the perianth tube are 5cushion shaped nectarines; androecium stamens 5, epiphyllous, starting from two-thirds of length of perianth tube and continuing to the tip of perianth lobes, appressed to the style in young flowers; filaments orange coloured; anthers monothecous, dark, basifixed; gynoecium ovary 1, inferior, obscurely unilocular; style long, filamentous; stigma capitate; placentation basal, one ovule in each locule.

Fruit: The fruit is an ovate pseudo berry, upto 3 mm in thickness and 3 to 8 mm in length; greenishyellow when mature and turning brown when dry; the top of the fruit is crowned by a persistent calyculus; the fruit contains an elongated, flask-shaped seed upto 5 mm long and 2 mm thick, brown, hard, and enclosed in a shiny, viscid film.[11]

b) Microscopy

Leaves: Transverse section of the leaf shows a thick cuticle, upper and lower epidermis composed of squarish cells with convexpericlinal outer walls; surface views of upper and lower nearly similar; stomata paracytic, present on both surfaces; mesophyll of lamina consisting of 2 to 4 layers inner to upper and lower epidermis made up of compactly arranged short rectangular cells and irregularly arranged parenchyma cells of middle layers but possesing a few intercellular spaces; occassional vascular strands passing through this middle portion; isolated sclereids about 50 µ thick containing prismatic crystals of about 12 µ present in parenchyma; midrib buldging prominently on both the surfaces and containing a group of 3 to 5 vascular bundles; xylem of vascular bundles oriented towards upper epidermis and consisting of tracheids, vessels and parenchyma; phloem present towards lower epidermis and consisting of thin walled cells; bundle sheath absent; each vascular bundle associated with patch of collenchymatous cells outside the phloem; tannin (ranging from yellow to brown in colour) abundant in parenchyma cells of midrib and lamina region, especially in the 2 or 3 subepidermal layers; stomatal index 9 to 13 on upper surface and 10 to 14 on lower surface.[12]

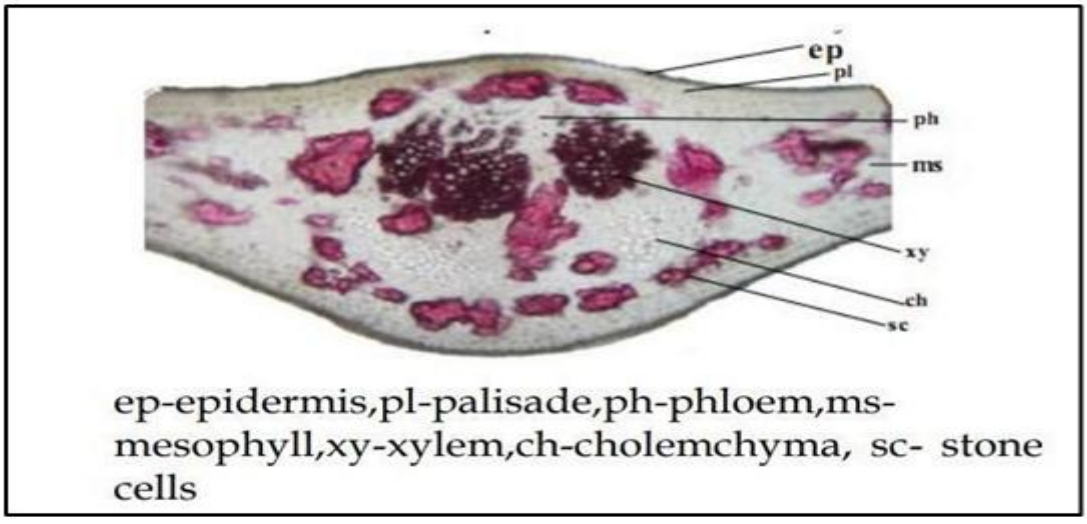

Fig.No:1-Leaf constants of Dendropthoefalcata

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Volume 8, Issue 2 Mar-Apr 2023, pp: 1474-1482www.ijprajournal.com ISSN: 2249-7781

Stem: A transverse section of stem reveals a circular outline with a thick cuticle, and epidermis made up of squarish or barrel shaped cells with convex outer periclinal walls and interrupted here and there by lenticular openings; cork made up of thinwalled, crushed rectangular cells; cortex consisting of many layers of tangentially elongated and rounded cells interspersed with sclereidsupto 85 µ in size and in groups of 2 to 4; many cells of cortex, especially those of outer few layers contain tannins ranging in colour from yellow, orange to dark brown; groups of pericyclicfibres form a ring outside phloem; cambium present; xylem surrounding the central pith and composed of well developed vessels, fibre and parenchyma, 1 to 4 seriate medullary rays composed of radially elongated cells present; pith consists of thin walled, rounded or polygonal parenchymatous cells; small groups of sclereids, up to 85 µ each in size present in both pith and medullary rays; prismatic crystals present in association with sclereids and medullary ray cells.[13]

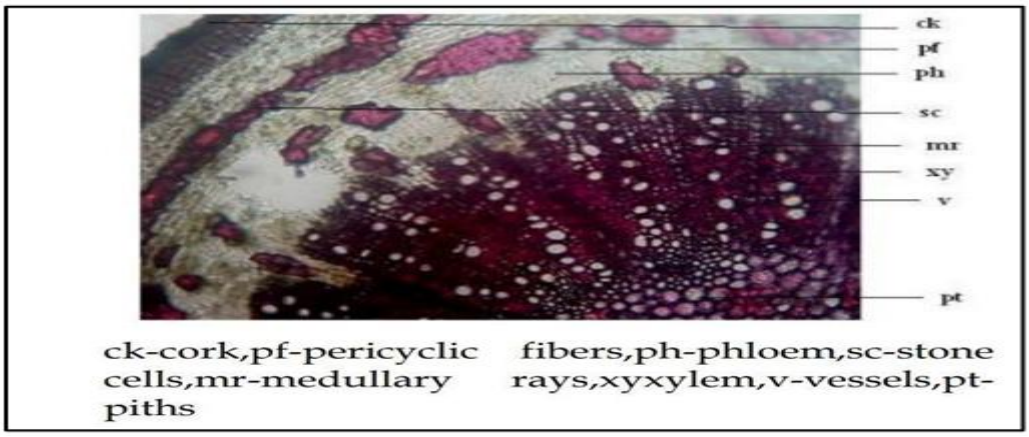

Fig.No:2-Transverse section of stem

TISSUE CULTURE

In-vitro culture of parasitic plants is important for many reasons. Morphological studies can be done on the endophytic system, various host-parasite relationships (mechanism, physiology, biochemistry, signals and receptors) can be examined, and physiological studies leading to the control of the more destructive parasitic plants can be investigated. Secondary metabolite production (i.e., cancer drugs) can be studied, along with the micropropagation and genetic improvement of plants with commercial value. In tissue culture, explants taken from parasitic plants may produce callus, shoots, roots, seedlings, somatic embryos, haustoria, and floral buds. Explants or callus have been used to derive cell suspensions and protoplasts. Regenerated plants can be obtained from somatic embryos or shoots developing from callus.[14]

The various tissue culture media that have been used are, B5 (15), Basal medium, C1 (16), Hoagland's solution, Harvey's medium (17,18), K medium (MS salts + B5 vitamines) (19, 15), Knop's medium (20), Linsmaier and Skoog medium (21), with White's medium being the most widely used for all families of parasitic plants. Most mistletoes (largely shoot hemiparasites) occur in tropical and subtropical climates worldwide and attack hardwood forest trees, shade trees, and gymnosperms (juniper, cypress) as well as coffee, cacao, rubber, apple, cherry, and citrus (22). Although mistletoes are very destructive, little is known about their growth, physiology, or aspects of the hostparasite relationship [15]. During seed germination, a radicle emerges which attaches to the host and produces a pad (holdfast) (Fig. 4) from which the endophyte that penetrates the host is produced. The plumule (embryonic shoot) emerges from between the two cotyledons (23). The dependency of the parasite on host stimulus for seed germination and the chemical factors initiating haustorium formation were studied in tissue culture [16].

Dendrophthoe is a stem hemiparasite on teak, mango, citrus, custard apple, eucalyptus, apple, peach, and guava in India (25). The nutritional requirements for parasite growth and induction of polyembryony (26) and factors promoting embryo development were studied to elucidate the physiology and nature of the host-parasite relationship (27). Undifferentiated and embryogenic callus, embryoids, buds (shoot,

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 2 Mar-Apr 2023, pp: 1474-1482www.ijprajournal.com ISSN: 2249-7781

floral), and seedlings with holdfasts and haustorial discs developed on White's medium. Haustorial formation was induced by adjusting the ratio of cytokinin to auxin, and high cytokinin (low auxin) resulted in shoots and low cytokinin (high auxin) resulted in development of haustoria [17]. In vitro culture of endosperm of Dendrophthoefalcata on medium supplemented with various auxins (Indole3acetic acid, Indole-3-butyric acid, Naphthalene-1- acetic acid and 2,9,- Dichlorophenoxyacetic acid), cytokinins (6-furfurylaminopurine, 6- benzylaminopurine and adenine) and casein hydrolysate, resulted in the formation of a number of shoot buds.

The buds develop either by division of epidermal cells or from callus formed from epidermal cells (29).

Karunaichamy et al (4) in 1999, worked on biomas and nutrient and nutrient dynamics of mistletoe (Dendrophthoefalcata) and neem (Azadirachtaindica) seedlings. Growth and tissue concentration of nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg) and sodium (Na) were measured for Dendrophthoefalcata (L.f.) Ettingsh., which is the hemiparasitic mistletoe growing on its host Azadirachtaindica seedlings, or neem seedlings. The shoot length and root length of the host seedlings were significantly reduced ($P < 0.05$) after mistletoe infection. Biomass of the infected A. indica seedling components (leaves, stem and root) was also significantly ($P < 0.05$) reduced. Mineral nutrient concentrations of N, P, K, Mg and Na were significantly higher ($P< 0.05$) in mistletoe leaves than in the leaves of both uninfected and infected host, whereas Ca concentration in mistletoe leaves was significantly higher ($P < 0.05$) than in the leaves of its host. Continued mistletoe growth kills the host and the mistletoe as well.[18]

Host plant	Flavonoidsidentified
Murrayakoeinii (Rutaceae)	Quercetin,kaempferol, queretagetin,quercitrin, hyperoside (quercetin-3-O galactoside), and acyl xylosideofquercetin
Nerium indicum (Apocyanaceae)	Quercetin,myricetin, quercitrin,myricitrin (myricetin-3-O-αL rhamnoside), meratin
Punica granatum (Punicaceae)	Quercetin,myricetin, quercitrin, hyperoside and acyl xylosideofquercetin
Mangifera indica (Anacardiaceae)	Quercetin,kaempferol, quercitrin and rutin
Scolopiacremate (Bixaceae)	Quercetin,kaempferol, quercitrin,hyperoside and rutin
Albizzialebbeck (Fabaceae)	Quercetin,kaempferol, quercitrin, hyperoside and acyl xylosideofquercetin

Table 1: Flavonoids from Dendrophthoefalcata parasitic on different host

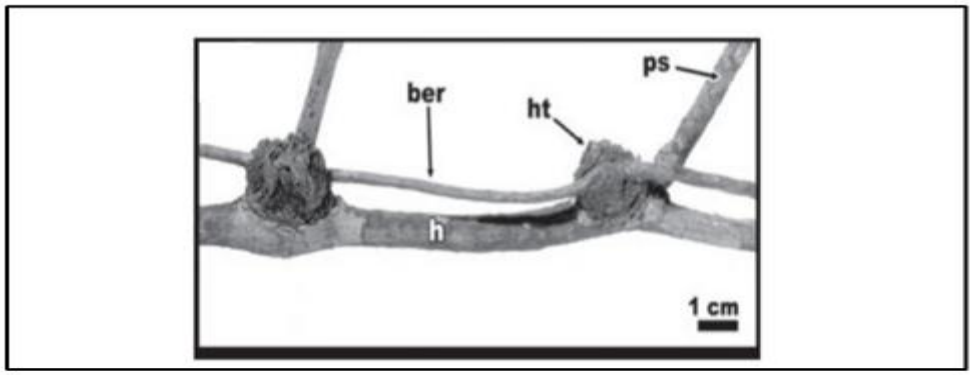

Figure 3: Basal epicortical root of Dendrophthoefalcata showing secondary haustorial attachments, parasite shoots and proliferation of host tissue. ber: basal epicortical root, ht: host tissues, ps: parasite stem

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International Journal of Pharmaceutical Research and Applications
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PHARMACOLOGY STUDIES

Wound healing activity:

Traditionally, fresh leaf and stem are ground into a paste with water and applied topically on affected places to heal wounds10. The ethanolic extract of the aerial parts showed potent wound healing activity11. Ethanolic extract of aerial parts was investigated for the evaluation of its healing efficiency on excision and incision wound models in rats. The results showed that Dendrophthoefalcata extract has potent wound healing capacity as evident from the wound contraction and increased tensile strength[19].

Antimicrobial activity:

petroleum ether, chloroform and ethanolic extracts exhibits significant antimicrobial activity against the organisms: Staphylococcus aureus, Staphylococcus pyogenes, Staphylococcus epidermidis, Micrococcus luteus, Bacillus subtilis, Bacillus cereus, Klebsiella pneumoniae, Enterobacteraerogenes, Pseudomonas aeroginosa, Serratiamarcescens, and five fungi Candida albicans, Candida tropicalis: dimorphic fungi, Aspergillusfumigatus, Aspergillusniger: systemic fungi, and some infectious bacteria Escherichia coli, and Salmonella typhi.[20]

Anthelmintic activity:

Ethyl acetate and methanolic extracts of the D. falcata leaves showed significant activity at 40 mg/ml.[21]

Antifertility effect:

The effect of traditionally used antifertility plant, Dendrophthoefalcata (L.f.) Ettingsh (Loranthaceae), was studied on female reproductive system, fertility and safety, by oral administration to adult female Wistar rats. The study revealed that the hydroalcoholic extract of the aerial parts hasantifertility effect and is safe at effective doses employed in the study. The LD(50) value was found to be 4.55 g/kg body weight.

Contraceptive effect:

The methanolic extract of stem of DendrophthoefalcataEttingsh (family-Loranthaceae), was gavaged in male albino rats (Adult proven fertile male rats) at 50, 100 and 200 mg/rat/day for 60 days. The activity was compared with standard drug, i.e. Lonidamine. The study revealed that the sperm motility and density were significantly reduced. The histoarchitecture of testes revealed degenerative changes in the seminiferous tubules, arrest of spermatogenesis at the stage of round spermatid. Serum testosterone levels were decreased significantly in all treatment groups. 15.

Antioxidant and anticancer activity:

The therapeutic potential of the hydroalcoholic extract of Dendrophthoefalcata (L.f) Ettingsh (Loranthaceae; HEDF) on 7,12-dimethylbenz(a)anthracene (DMBA)- induced mammary carcinoma was investigated in Wistar female rats. The study revealed that a significant decrease in alanine aminotransferase, aspartate aminotransferase with a sharp increase in alkaline phosphatase, acid phosphatase, and 5′-nucleotidase was observed in the liver of mammary cancerbearing animals. HEDF treatment caused the activity of these liver marker enzymes' return to almost normal control levels. Furthermore, the breast tumor weight decreased significantly in the DMBA + HEDF-treated groups. This result suggests that HEDF shows antioxidant activity and play a protective role against DMBAinduced breast carcinogenesis.

Antihyperlipidaemic Activity:

Hyperlipidaemia was induced by administration of High fat diet (HFD for 42 days which showed marked elevated levels of serum TC, TG, LDL VLDL, and reduction in level of HDL as compared to control group fed with normal diet. Administration of Dendrophthoefalcata leaves ethanolic extracts with daily dose of 300 mg/kg, ($p<0.01$) significantly altered the levels of serum TC, TG, LDL, VLDL and serum HDL level at different degrees. Ethanolic extract (70%) at 300mg/kg showed significant reduction in elevated blood glucose level as compared with diabetic control group18. It is also reported to have antihypertensive activity19, diuretic and antilithiatic activity(21).

II. CONCLUSION:

In this review, we have presented information on the pharmacognosy, phytochemistry, ethnomedicinal uses and pharmacological activities. The survey of literature revealed that Dendrophthoefalcata is a hemi-parasitic plant belonging to the family Loranthaceae. It is also known as Loranthusfalcatus Linn.

f. It is indigeneous to India, Srilanka, Thialand, Indo- china, Australia.It is a source of mainly therapeutically important chemical

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 2 Mar-Apr 2023, pp: 1474-1482www.ijprajournal.com ISSN: 2249-7781

constituents as carbohydrates, alkaloids (leaf), phytosterols, fixed oils, phenolic compounds, gallic acid, ellagic acid, triterpenes, quercetin, quercetrin, rutin, chebulinic acid, β-amyrin acetate, β-sitosterol, stigmasterol etc. Studies have revealed its use in wound healing, ulcer, asthma, paralysis, skin diseases, hepatoprotection, immunomodulation, tumor and menstrual troubles. Therefore, further studies may be carried out to prove the potential of this plant.

Literature

1. M Krishnaveni and S mirunalini. Amla- The role of Ayurvedic therapeutic herb in cancer. Asian J Pharm Clin Res. 2011.

Medicinal plants are part of human society to combat diseases, from the dawn of civilization. Phyllanthusemblica (Amla) possesses a vast ethnomedical history and represents a phytochemical reservoir of heuristic medicinal value. It is one of the oldest oriental medicines mentioned in Ayurveda as potential remedy for various ailments. The fruit is rich in quercetin, phyllaemblic compounds, gallic acid, tannins, flavonoids, pectin, and vitamin C and also contains various polyphenolic compounds. A wide range of phytochemical components including terpenoids, alkaloids, flavonoids, and tannins have been shown to posses' useful biological activities. Many pharmacological studies have demonstrated the ability of the fruit shows antioxidant, anticarcinogenic, antitumour, antigenotoxic, antiinflammatory activities, supporting its traditional uses. In this review, we have focused our interest on phytochemistry, traditional uses, cancerchemopreventive activity of Phyllanthusemblica both in vivo and in vitro. In view of its reported pharmacological properties and relative safety, P.emblica could be a source of therapeutically useful products.

2. K. Chan, Some aspects of toxic contaminats in herbal medicines.

A World Health Organisation survey indicated that about 70-80% of the world populations rely on non-conventional medicine mainly of herbal sources in their primary healthcare. In recent years, we have witnessed the increasing growth in popularity of over-the-counter (OTC) health foods, nutraceuticals, and medicinal products from plants or other natural sources in developed countries. This indirectly indicates that the public is not satisfied with their orthodox medical (OM) treatment. Such increase in popularity has also brought concerns and fears over the professionalism of practitioners, and quality, efficacy and safety of their treatment methods and products from herbal and natural sources available in the market. Over the past decade several news-catching episodes in developed communities indicated adverse effects, sometimes life threatening, allegedly arisen consequential to taking of OTC herbal products or traditional medicines from various ethnic groups. These OTC products may be contaminated with excessive or banned pesticides, microbial contaminants, heavy metals, chemical toxins, and for adulterated with orthodox drugs. Excessive or banned pesticides, heavy metals and microbial contaminants may be related to the source of these herbal materials, if they are grown under contaminated environment or during collection of these plant materials. Chemical toxins may come from unfavourable or wrong storage conditions or chemical treatment due to storage. The presence of orthodox drugs can be related to unprofessional practice of manufacturers. Some of these environment related factors can be controlled by implementing standard operating procedures (SOP) leading to Good Agricultural Practice (GAP), Good Laboratory Practice (GLP), Good Supply Practice (GSP) and Good Manufacturing Practice (GMP) for producing these medicinal products from herbal or natural sources. The public's belief that herbal and natural products are safer than synthetic medicines can only be ascertained by imposing regulatory standards on these products that should be manufactured using these Good Practices. Using Chinese medicines, as examples, this paper illustrate how advances in chemical and biomedical analysis would help to detect intentional and unintentional toxic contaminants in herbal substances. The paper also summarises how modernization and progress are being carried out to get the best out of Chinese medicines for public healthcare.

3. D.L. Nickrent and L.J. Musselman. Introduction to Parasitic Flowering Plants. The Plant Health Instructor.

Holoparasitism is a special life cycle of flowering plants. All carbon resources are provided by photosynthetic host plants. A recent study revealed the presence of endophytic fungi in holoparasitic plants, but their ecological and evolutionary roles are still unknown. In this study, we examined endophytic fungi isolated from the

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 2 Mar-Apr 2023, pp: 1474-1482www.ijprajournal.com ISSN: 2249-7781

holoparasitic plant Balanophora japonica (Balanophoraceae), collected from Kochi, Shikoku in western Japan. We isolated 23 fungal strains on inflorescences and tubers from three B. japonica plants at two locations and on one sample of the host plant (Symplocoslancifolia, Symplocaceae). Predominant isolates were Trichoderma-Hypocrea, Penicillium and Phialemonium. The first group was also predominant in the host plant. Fungal composition revealed in this study differed from the composition on B. harlandii or other root holoparasites with endophytic fungal (Rafflesiacantleyi) data. Those differences might be caused by various factors, including growth habits, location, phylogenetic position or host-parasite relationship.

4. R. Sampathkumar and R. Selvaraj, Some new host for Dendrophthoefalcata (Linn. f.) Ettingh.

To test the hypothesis that higher antioxidant potential of hemiparasitic plants is due to sequestration of phenolic compounds from the host plants, samples of Dendrophthoefalcata, a hemiparasite collected from different hosts, were investigated for total phenolics, total flavonoids and 1,1-diphenyl-2-picryl-hydrazyl (DPPH) radical scavenging activity. The hosts significantly influenced the phenolic content of the hemiparasite. However, similar influence was not detected on radical scavenging activity and no correlation was found in the phenolics and free radical scavenging activities. Further investigation on transfer of constituents revealed that D. falcata sample obtained from a host, Mangiferaindica, contained mangiferin, a C-glucosylxanthone, and some unidentified flavonoids as confirmed by HPTLC flavonoid patterns. The data indicated that the hosts significantly affected total phenolics and total flavonoids in a hemiparasite. This is the first report of transfer of mangiferin from M. indica to a hemiparasite. The present report points towards the need of further investigations on the possible role of transferred phenolics either as mediators of host defense, host defense compounds utilized as cues of identification of the host by the hemiparasite or compounds taken up by the parasites to support their defense against rejection by the hosts.

5. R.L. Ram and K. K. Nag. Comparative studies on shoot formation from endosperm, embryo and in vitro-formed leaf cultures of Dendrophthoefalcata (L. f.) Ettings.

Herbal medicine is used by up to 80% of the population in developing countries. Dendrophthoefalcata (L.f) Ettingsh is a popular hemiparasitic plant and is used in folklore medicine for ailments including ulcers, asthma, importence, paralysis, skin diseases, menstrual troubles, pulmonary tuberculosis and wounds. Scientific evidence suggests its versatile biological functions such as it's potentiality in immunomodulation, reducing the tumor volume, male contraception, urolithiasis and wound healing. A comprehensive account of the morphology, tissue culture, phytochemical constituents, ethnobotany and biological activities, are included in view of the recent findings of importance on the plant, Dendrophthoefalcata. Key words: Dendrophthoefalcata, hemiparasite plant, tissue culture, anti-tumor

REFERENCES

[1]. M Krishnaveni and S mirunalini. Amla-The role of Ayurvedic therapeutic herb in cancer. Asian J Pharm Clin Res. 2011.<POOJA>
[2]. A. Dyson, Discovering Indigenous Healing Plants of the Herb and Fragrance Gardens at Kirstenbosch National Botanical Garden.<SUNITA>
[3]. K. Chan, Some aspects of toxic contaminats in herbal medicines.<SUNITA>
[4]. D.L. Nickrent and L.J. Musselman. Introduction to Parasitic Flowering Plants. The Plant Health Instructor.<SUNITA>
[5]. R. Sampathkumar and R. Selvaraj, Some new host for Dendrophthoefalcata (Linn. f.) Ettingh. <SUNITA>
[6]. . R. N.Chopra, S. L., Nayar and I. C. Chopra, Glossary of Indian Medicinal Plants (Council of Scientific and Industrial Research, New Delhi).<SUNITA>
[7]. H.O. Saxena and M. Brahmam, The flora of Orissa, Vol.III. <SUNITA>
[8]. Ayurvedic Pharmacopoeia of India. Vol. 5, 212-214.<POOJA>
[9]. Baheti DG, Kadam SS, Namdeo Ajay, Shinde PB, Agrawal MR and Argade PD.
[10]. Pharmacognostic screening of Dendrophthoe falcata. Phcog J. 2010.<POOJA>
[11]. Baheti DG, Kadam SS, Namdeo Ajay, Shinde PB, Agrawal MR and Argade PD. Pharmacognostic screening of Dendrophthoe falcata.

[12]. NipunDashora, RichaAgrawal, Vij. P.P. Sapkota, Ecological study and traditional uses of Medicinal plants in Malika forestBaglung, west Nepal. (Central Department of Botany, Tribhuvan University, Nepal. M.Sc. Thesis, 2000) .
[13]. N.P. Manandhar, Plants and people of Nepal, (Timbre Press, Oregon, USA, 2002).
[14]. ay Sodde, Kirti S. Prabhu, Richard Lobo. Pharmacognostical evaluation of Dendrophthoe falcata. Journal of Pharmacy Research.
[15]. O.L. Gamborg, Callus and cell culture. In: O. L. Gamborg and L. R. Wetter, ed. Plant tissue culture methods.
[16]. Z.M. We and Z.H. Xu. Regeneration of fertile plants from embryogenic suspension culture protoplasts of Sorghum vulgare, Plant Cell Reproduction.
[17]. B.M. Johri and Y.P.S. Bajaj. Growth responses of globular proembryos of Dendrophthoefalcata (L.f.) Ettings in culture. Phytomorphology
[18]. R.L. Ram and M.P.N. Singh, In vitro haustoria regeneration from embryo and in vitroformed leaf callus cultures in Dendrophthoefalcata (L.f.) Ettings.
[19]. R.L. Ram and K. K. Nag. Comparative studies on shoot formation from endosperm, embryo and in vitro-formed leaf cultures of Dendrophthoefalcata (L. f.) Ettings.
[20]. H.O. Saxena and M. Brahmam, The flora of Orissa, Vol.III, (Capital Business Services & Consultancy, Bhubaneswar, 1995)
[21]. R. N.Chopra, S. L., Nayar and I. C. Chopra, Glossary of Indian Medicinal Plants (Council of Scientific and Industrial Research, New Delhi, 1956)
[22]. E.M. Linsmaier and E. Skoog. Organic growth factor requirements of tobacco tissue cultures. Physiol. Plant. 18(1):100-127 (1965).