

Introduction

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“Nature is still mankind’s greatest chemist and many compounds that remain undiscovered in plants are beyond the imagination of even our best scientists”.

Plants are the sources of food, medicine, fuel, fibre and others. There are several indigenous plants that have been used by man from prehistoric times throughout the world to cure human and animal ailments. Ancient human beings were closely associated with domestic animals and plants which were used for their daily necessities like food, shelter, clothing and medicines.

India has an impressive medicinal flora population. Medicinal plants and their derivatives remain one of the major source of drugs in modern and traditional systems throughout the world.

Ethnoveterinary medicine (EVM) is the traditional animal health care of tribal community that encompasses the knowledge, skills, methods, practices and beliefs animal health care. Ethnoveterinary practice to animal health care is as old as the domestication of livestock. Ethnoveterinary practice to animal health care is as old as the domestication of various livestock species. Ethnoveterinary medicine is of specific value in developing countries where allopathic veterinary medicines are often beyond the reach of livestock producers. Many indigenous veterinary beliefs and practices persist in majority of livestock owners and farmers, particularly in the developing countries.

Skin disease or dermatophytosis is an infectious disease of animals caused by different species of keratinophilic fungi. It is a major public and veterinary health problem reported from different parts of the world. This is considered to be

serious in domestic animals because this cause loss of production, contamination of the premises, very contagious, prone to infect human and heavy economic loss due to skin damage. The disease appears to be more common in tropical regions than in temperate regions particularly in countries having hot and humid climatic condition. The disease when acquired by animals can spread to human also. Topical lotions / shampoos / ointments or antifungal drugs are used to treat skin diseases in animals. Though the skin disease causing fungi respond to these drugs, they have the tendency to relapse or reoccur and cause many side effects. Highly effective drugs are available to cure the disease but are unaffordable. Evidence indicates that drugs are effective after one week of therapy, but the best responses are seen when it is used for four weeks. So an alternative therapy is needed.

Therapeutic efficacy of many indigenous plants for several disorders has been described by practitioners of traditional medicine. Treatment based on herbal medicine is becoming increasing because of its effective curability, availability, affordability and less or nil side effects. The application of medicinal plants has long been an integral part of both human and veterinary medicine. Plant derived antifungal drugs could provide a niche for herbal formulations against skin disease in animals with possible better affordability and curability.

In nature, a plant is able to synthesize complex molecules, namely alkaloids, terpenoids, tannins, saponins, glycosides, etc., collectively called as secondary metabolites. Plants use these for defense and communication. It is difficult and expensive to duplicate such synthesis in laboratory. These compounds play an important role as medicinal and pharmaceutical agents not only as purified isolates but also as lead compounds for synthetic optimization.

The most important challenges faced by these formulations arise because of their lack of complete evaluation. It is necessary to ensure quality and purity of the herbal product. It is very important to establish a system of evaluation for every

plant medicine in the market, since the scope for variation in different batches of medicine is enormous.

Since ancient times, *Andrographis paniculata* (Family Acanthaceae) is used as a wonder drug in traditional siddha and ayurvedic system of medicine as well as in tribal medicine in India and some other countries for multiple clinical applications. It is found wild throughout the plains of India especially in Tamil Nadu, Karnataka, Maharashtra, Odissa, Uttarpradesh and Uttarkhand. The extremely bitter and characteristic taste of the herb gives it the term “King of bitters”. It has anticancer, anti diabetic, anti malarial, antihypertensive, antithrombic, anti-inflammatory, antidiarrhoeal, antiviral, antihyperglycemic, anti HIV, antimicrobial and wide range of pharmacological activity. This plant is used in the treatment of skin infections in India. It is an immune system booster and has significant activity in fighting common cold, flu and upper respiratory infections. The plant is effective in treating vitiligo, poison bites, snake bite and chronic hepatitis.

Lawsonia inermis (Family Lythraceae) commonly known as “henna” is available throughout the world. Leaves, flowers, seeds, stem, bark and roots are used in traditional medicine to treat a variety of ailments like rheumatoid arthritis, head ache, ulcers, diarrhea, leprosy, fever, leucorrhoea, diabetes, cardiac disease, hepatoprotective, jaundice, skin diseases, venereal diseases, small pox and spermatorrhoea. The plant possess antimicrobial, antifungal, antiviral, antioxidant, antiparasitic, antidiabetic, nematocidal, anticoagulant, antisickling, anti-inflammatory, antitrypanosomal and antidermatophytic properties. The plant is applied to cure ticks infection in animals. It is used to cure gonorrhoea, herpes, hysteria, nervous disorder, anemia and Alzheimer’s disease.

Madhuca longifolia (Family Sapotaceae) commonly called as “South Indian Mahua” occurs in the plains and lower hills of India. The tree bark, leaves, fruits, flowers and seeds are useful in making drug. Bark is used for treatment of

rheumatism, fever, itching, diarrhoea, hemorrhage, bleeding gums and ulcers and in diabetic. Leaves are useful for burns and scalds. Flowers are cooling, tonic, expectorant and nutritive. The seeds are useful in cephalalgia, oil for making soaps and a good medicine for skin diseases. The seeds of *Madhuca* was reported to possess antimicrobial, antibacterial, antifungal, anticancer, antioxidant, antiparasitic, antidiabetic, antiirritant, antiphlogistic, antimalarial, antiulcer, antipyretic, antidermatophytic, anti-inflammatory, anti helminthic and anticonvulsant properties. It is used as astringent, emollient, hypoglycaemic and general tonic. It is a good remedy for cold, cough, bronchitis, urinary ailments, sprain, piles, constipation, skin disease, headache, swelling, fractures and snake bite poisoning.

It is very important that a system of standardization is established for every plant medicine in the market because the plant material may vary in its phytochemical content and therefore its therapeutic effect varies according to place, time, season of collection and environmental factors surrounding the cultivation of the medicinal plant.

Considering the serious impact of dermatophytosis on animals and the role of medicinal plants in curing the diseases, present research was under taken with the following objectives.

Objectives

- Isolation and identification of pathogens from infected domestic animals
- Screening of indigenous medicinal plants for their antimicrobial property
- Phytochemical studies on selected plants
- Standardization of herbal dosage by *in vitro* and *in vivo* studies
- Preparation and evaluation of herbal formulations
- Toxicological studies on selected plant materials and the formulations
- Clinical trials with herbal formulations