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Review Article

AN UPDATED REVIEW ON ANTHELMINTIC MEDICINAL PLANTS

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ABSTRACT
Medicinal plants are part and parcel of human society to combat diseases, from the dawn of civilization. There exists a plethora of knowledge, information and benefits of herbal drugs in our ancient literature of Ayurvedic (Traditional Indian Medicine), Siddha, Unani and Chinese medicine. According to the World Health Organization, 2003 about 80 % of the population of developing countries being unable to afford pharmaceutical drugs rely on traditional medicines, mainly plant based, to sustain their primary health care needs. Herbal medicines are in great demand in the developed as well as developing countries for primary healthcare because of their wide biological and medicinal activities, higher safety margins and lesser costs. In this review we have enlisted the updated anthelmintic medicinal plants which are used as good alternatives for the traditional allopathic anthelmintic agents.
Key words: Traditional Indian Medicine, primary healthcare, anthelmintic medicinal plants

INTRODUCTION

Helminthitic infections are among the most common infections in human beings, affecting a large proportion of the world's population. In developing countries they pose a large threat to public health and contribute to the prevalence of anaemia, malnutrition, eosinophilia and pneumonia[1-3]. The helminthes which infect the intestine are cestodes e.g. Tape worms (Taenia solium), nematodehook worm (*Ancylostoma duodenale*), round worm (*Ascaris lumbricoids*) and trematodes or flukes (*Schistosoma mansoni* and *schistosoma haematobium*). The diseases originated from parasitic infections causing severe morbidity include lymphatic filariasis, onchocerciasis and schistisomiasis. These infections can affect most populations in endemic areas with major social and economic consequences. The traditional medicines hold a great promise as source of easily available effective anthelmintic agents to the people, particularly in tropical developing countries, including India[4]. It is in this context that the people consume several plants or plant derived preparations to cure helmintic infections. Ideally an anthelmintic agent should have broad spectrum of action, high percentage of cure with a single therapeutic dose, free from toxicity to the host and should be cost effective .none of the synthetic drug meets this requirement. Even the most common drugs like Piperazine salts have been shown to have side effects like nausea, intestinal disturbances and giddiness, resistance of the parasites to existing drugs and their high cost warrants the search for newer anthelmintic molecules[5-7]. The origin of many effective drugs is found in the traditional medicine practices and in view of this several researchers have under taken studies to evaluate folklore medicinal plants for their proclaimed anthelmintic efficacy. Most of the screenings reported are in vitro studies using some worm samples like Indian earth worm *Pheretima posthuma*, *Ascardia galli*, *Ascaris lumbricoides* etc. Adult Indian earthworm, Pheretima posthuma has been used as test worm in most of the anthelmintic screenings, as it shows anatomical and physiological resemblance with the intestinal round worm of parasite of human beings. Because of easy availability, earthworms are used as suitable models for screening anthelmintic drug[8].

In this present review, we discussed the different anthelmintic plants are scientifically reported by various researchers during jan-dec 2011.

Table 1: List of anthelmintic plants

Botanical name	Family	Parts used	Extracts used	Chemical constituents	References
Acacia Suma Roxb	Fabaceae	Bark	Chloroform, pet. ether	Gallo-catechin	Acharya Suman et al[9]
Acalypha Fructicosa	Euphorbiaceae	Whole Plant	Methanol	Tannins, flavonoids	Lakshmypathy et al[10]
Acalypha indica Linn	Euphorbiaceae	Leaves	Pet. ether, alcohol	Alkaloids, saponins	Garai Ranju et al[11]
Aegle marmelos Linn	Rutaceae	Fruits	Ethanol	Tannins	Bhawana Sati et al[12]
Ailanthus excelsa Roxb	Simaroubaceae	Bark	Ethanol	Alkaloids, flavonoids	Kasarwala et al[13]
Anemone vitifolia Var	Ranunculaceae	Root	Ethanol	Glycosides, alkaloids	Bhawana Sati et al[14]
Barringtonia acutangula Gaertn	Lecythidaceae	Leaves	Ethanol	Terpenoids, tannins	Padmavathi et al[15]
Bauhinia purpurea Linn	Fabaceae	Whole Plant	Acetone	Leutin	Kumar et al[16]
Bauhinia racemosa Linn	Fabaceae	Whole Plant	Pet. ether, ethanol, Aqueous	Kaempferol, coumarins, steroids	Tekeshwar kumar et al[17]
Caesalpania pulcherrima Linn	Leguminaceae	Flowers	Ethanol, Pet. Ether	Di-terpenoids	Dhaked et al[18]
Cassia tora Linn	Fabaceae	Leaves	Aqueous, ethanol	Alkaloids, saponins	Bimlesh kumar et al[19]
Cissampelos pareira Linn	Menispermaceae	Leaves	Aqueous	Alkaloids, saponins	Shukla et al[20]
Citrus acurantium Linn	Rutaceae	Fruit juice	Water	Alkaloids, steroids	Bidker et al[21]
Cymbopogon Martinii Roxb	Poaceae	Leaves	Aqueous	Geraniol	Katiki et al[22]
Cymbapogon schoenanthus Linn	Poaceae	Leaves	Aqueous	Geraniol	Katiki et al[22]
Clerodendrum phlomidis Linn	Verbanecaea	Aerial parts	Methanol, Ethyl acetate	Tannins, flavonoids, terpenoids	Vincent et al[23]

Corallocarpus epigaeus Rottl	Cucurbitaceae	Roots, rhizomes	Aqueous, methanol	Ketodiol, carpenoyl ester	Shri Vijaya Kirubha et al[24]
Clitoria ternatea Linn	Fabaceae	Leaves	Aqueous, Ethanol	Alkaloids, aminoacids	Bimlesh Kumar et al[25]
Ficus bengalensis Linn	Moraceae	Fruits	Aqueous extract	Alkaloids, flavonoids	Mukesh kumar singh et al[26]
Gymnema Sylvestre R.Br	Asclepiadaceae	Leaves	Methanol	Triterepeniods,	Lakshmipathi raj et al[27]
Jalans regia Linn	Juglandacaeae	Leaves	Pet. ether, methanol, Aqueous	Tannins, saponins	Das et al[28]
Lawsonia inermis Linn	Lythraceae	Leaves	Pet. ether	Lawsone	Bairagi et al[29]
Leptadenia pyrotechnica Forssk	Asclepiadaceae	Stem	Methanol	Flavonoids, glycosides	Sunil kumar et al[30]
Maduca Indica Linn	Sapotaceae	Flowers	Methanol Ethanol	Alkaloids	Kativar et al[31]
Manihot esculenta Linn	Euphorbiaceae	Leaves	Pet. ether, methanol, aqueous	Glycosides	Jayasri et al[32]
Murraya koengil Spreng	Rutaceae	Leaves	Alcohol, Pet. ether	Girinimbine	Khuntia et al[33]
Neolamarckia cadamba Linn	Rubiaceae	Bark	Methanol, chloroform, Pet. ether	Indole alkaloids	Mondal et al[34]
Pandanus fascicularis Linn	Pandanaceae	Leaves	Ethyl acetate, ethanol	Tannins, saponins	Nayak bhabani shankar, Jena prabhat kumar[35]
Parkia Biglobosa	Fabaceae	Leaves	Aqueous	Alkaloids, saponins	Soetan and lasisi[36]
Prosopis cineraria Linn	Mimosaceae	Bark	Pet. ether, methanol	Fixed oils	Velmurugan et al[37]
Sapindus trifoliatus Linn	Sapindaceae	Seeds	Methanol	Saponins, flavonoids	Chaitanya Sravanthi et al[38]
Saraca indica Linn	Caesalpinaceae	Leaves	Ethanol, methanol	Tannins, glycosides	Sarojini nayak et al[39]
Sesbania grandiflora Linn	Fabaceae	Bark	Methanol Pet. ether	Alkaloids, tannins	P Karbuike et al[40]
Spondias pinnata Linn	Anacardiaceae	Bark	Ethanol Acetone	Glycosides	Panda B.K et al[41]
Symplocos racemosa	Symplocaceae	Bark	Ethanol	Colloturine , Glycosides	Narasimha Rao et al[42]

CONCLUSION

Traditional systems of medicine are popular in developing countries and upto 80% of population relies on traditional medicines or folk remedies for their primary health care needs. Herbal medicines are in great demand in the developed as well as developing countries for primary health care because of their wide biological and medicinal activities, higher safety margins and lesser costs. The present review study give evidential explore mechanism of action of medicinal plants against experimentally induced helminthiasis. Hence the review study is concluded that the herbal drug possesses anthelmintic activity and it has been proved by earth worm model gives many links to develop the future trials.

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