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Review article

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A review on medicinal plants with hypolipidemic activity

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ABSTRACT

In the last few years there has been an exponential growth in the field of herbal medicine and these drugs are gaining popularity both in developing and developed countries because of their natural origin and less side effects. There are a growing number of studies reporting hypolipidemics activity with traditional medicines. The present review constituents on plant with hypolipidemic activity from this plants and special emphasis on those found in different regions all over the world, including mainly India. The information is recorded in plant scientific name, family, part used, route of administration, dose given, Method used (Pharmacological method) and references. The advantages of herbal medicines reported are effectiveness, safety, affordability, and acceptability. The present review focus on the botanical sources, Phytochemistry, Therapeutic uses, potential Pharmacological effect of some of the herbs, and Siddha formulations, being used in Siddha system of medicine for urolithiasis.

Keywords: Hypolipidemic activity, Traditional medicine, Herbal medicine.

INTRODUCTION

Hyperlipidemia is one of the greatest risk factor contributing to prevalence and severity of cardiovascular diseases like coronary heart diseases (WHO 1997). numerous population of total cholesterol (TC), Low density lipoproteins-cholesterol (LDL-C), and very low density lipoprotein – cholesterol (VLDL-C) in plasma with an increased incidence of atherosclerotic events (Goldstein et al, 1973, Keys-1975). Medicinal plants have always been considered as healthy source of life for all peoples due to its rich therapeutic properties and being 100% natural. Medicinal plants are widely used by majority of populations to cure various diseases and illness and high impact on the world's economy(43). A plant is rich in fruits, vegetables, and legumes and low

in saturated fat, along with regular aerobic exercise program, is an effective risks of cardiovascular diseases (Berliner JA. 1996A Plant based diet that is rich in fruits, vegetables, and legumes and low in saturated fat, along with regular aerobic exercise program, is an effective prescription for anyone with elevated risks of cardiovascular diseases (Berliner JA., (1996). Hyperlipidemia is one of the greatest risk factors contributing to prevalence and severity of cardiovascular complications like coronary heart diseases including atherosclerosis. Hyperlipidemia is characterized by elevated serum total cholesterol and low density and very low density lipoprotein cholesterol and decreased high density lipoprotein. Hyperlipidemia associated lipid disorders are considered to cause the atherosclerotic

cardiovascular complications. Among these hypercholesterolemia and hypertriglyceridemia are closely related to ischemic heart disease. High plasma level of cholesterol along with generation of reactive oxygen species (ROS) play key role in the development of coronary artery diseases (CAD) and atherosclerosis. Oxidative stress is currently suggested a mechanism underlying hypercholesterolemia. Though many advances in the diagnosis of diseases have been made, the battle to increase quality of human life and proper treatment of these diseases is still unmet. Till now there is no accurate therapy for many of these diseases without considerable adverse or serious side effects. At present, the only option is a long list of prescription drugs that may alleviate symptoms but slowly eat away body's immunity and quality of life. In this context, ⁽⁴⁷⁾it worth mentioning that Indian plants are considered a vast source of several pharmacologically active principles and compounds that are commonly used in home remedies against multiple ailments. Currently, no pharmacological treatment provides sustained weight loss with minimal adverse effects. Thus, attempts have been made to reduce body weight with such pharmacological intervention that possesses minimal side effects. Plants have been used as traditional natural medicines for healing many diseases. In particular, various oriental medicinal plants are reported to have biological activity. The medicinal plants have been used in traditional medicines for hundreds of years with reputation as efficacious remedies although there may not sufficient scientific data to substantiate their

efficacy. These plants are rich source of bioactive compounds and thus serve as important raw material for drug production. It has now been established that the plants synthesis and accumulate some secondary metabolites like alkaloids, glycosides, tannins, volatile oils etc.(45).

MATERIALS AND METHODS

In the review we collected information from the chemical abstracts, National and International journals, E-Library, Internet & other research materials. 1) High Cholesterol diet induced method (HCD), 2) Triton induced hyperlipidemic method (HFrD) 3) Tylaxapol induced hyperlipidemic method (Tyl) 4) High fat diet induced hyperlipidemic method 5) Hydrocortisone induced method 6) High fat diet induced method (HFD).

CONCLUSION

In conclusion all the 101 plants species listed described appear to be promising as hypolipidemic agents with activity mediated through various mechanisms. Further experiments will possibly define this pharmacological effect and active constituents. May become of importance for human clinical treatment. Hyperlipidemia is a very important major cause of cardiovascular disorder. Due to unwanted side effects the efficacies of these compounds are debatable and there is a demand for new compounds for the treatment hyperlipidemia.

PLANTS HAVING HYPOLIPIDEMIC ACTIVITY

BOTANICAL NAME	FAMILY	PARTS USED	DOSE (Mg/Kg)	REFERENCE
<i>Amaranthus Spinous</i>	Amaranthaceae	Leaves	200,300,400	Girija, et.al
<i>Glycyrrhiza Glabra</i>	Fabaceae	Root	5/10 g	Nishant, et.al
<i>Withania Somnifera</i>	Solanaceae	Root	5/10 g	Nishant, et.al
<i>Chlorophytum Borivilianum</i>	Liliaceae	Root	5/10 g	Nishant, et.al
<i>Moringa oleifera</i>	Moringaceae	Leaves, root	100/200	Rajanandh et.al
<i>Sphaeranthus indicus</i>	Asteraceae	Flower heads	500	V V Pandey, et.al
<i>Rhinacanthus nasutus</i>	Acanthaceae	Whole plant	200,400	Brahma, et.al
<i>Pithecellobium Dulce benth</i>	. Leguminosae	Fresh leaves	200	Sundarajan, et.al
<i>Hibiscus cannabinus</i>	Malvaceae	Fresh leaves	200,400	Shivali et al
<i>Eclipta prostrata</i>	Asteraceae	Plant juice	50,300,600	RDandap, et.al
<i>Sesbania grandiflora</i>	Fabaceae	Leaves	200 µg	Saravanakumar
<i>Lycium barbarum</i>	Solanaceae	Fruit	100	Qiong Luo, et.al
<i>Ougeinia oojensis</i>	Fabaceae	Bark	200 µg/Kg	Velmurugan, et.al

<i>Randia dumetorum</i>	Rubiaceae	Fruit	200	Piyush et al
<i>Luffa aegyptiaca</i>	Cucurbitaceae	Fruit	400	AbdulHamed,et.al
<i>Bauhinia purpurea</i>	Fabaceae	Leaves	300	Lakshmi, et.al
<i>Psidium guajava</i>	Myrtaceae	Leaves	300	Shubhangi, et.al
<i>Piliostigma Thonningii</i>	Musecea	Leaves	50,100,200	Dasofunjo, et.al
<i>Crotalaria juncea</i>	Fabaceae	Leaves	100,200	KHarikumar,et.al
<i>Abelomoschus esculentus</i>	Malvaceae	Whole plant	300	T.H.Ngoc, et.al
<i>Achyranthus Aspera</i>	Amaranthaceae	Roots	100	Ak khanna, et.al
<i>Aegle marmelos</i>	Rutaceae	Leaf	300	Partha Ray, et.al
<i>Ajuga iva</i>	Labiataea	Whole plant	10	Badialyoussi,et.al
<i>Allium cepa</i>	Liliaceae	Fresh bulbs	200	K.Kumari, et.al
<i>Allium sativum</i>	Liliaceae	Fresh fruits	10	Allenki,et.al
<i>Alpinia galanga</i>	Zingiberaceae	Rhizome	20	CRAchuthan,et.al
<i>Alstonia scholarin</i>	Apocynaceae	Leaves	100,200,400	S.Arulmozhi, et.al
<i>Amaranthus Viridis</i>	Amaranthaceae	Leaves	200,400	AshokKumar,et.al
<i>Anogeissus latifolia</i>	Combretaceae	Fresh gum	250,500,750	CKRamesh et.al
<i>Anthocephalus indicus</i>	Rubiaceae	Root	500	R.K.Singh et.al
<i>Apium graveolens</i>	Apiaceae	Seed	213,425	Kamlamansi et.al
<i>Arginia spinosa</i>	Sapotaceae	Fresh seed oil	200	H.Berrougui et.al
<i>Asparagus racemosus</i>	Liliaceae	Roots	10,20	NVisavadiya et.al
<i>Asystasia gangetica</i>	Acanthaceae	Leaves	100	PradipKumar et.al
<i>Bauhinia Variegata</i>	Cesalpiniaceae	Roots &Stems	200,400	T.G.Rajani et.al
<i>Caesaria Sylvestris</i>	Flacourtiaceae	Leaves	125,250,500	Schoenfelderet.al
<i>Capparis Decidua</i>	Capparidaceae	Flower,Fruits	500	N.Chahalia et.al
<i>Capparis Spinosa</i>	Capparidaceae	Fruits	20	M.Eddouks et.al
<i>Carica papaya</i>	Caricaceae	Seed	100,400	AAAdeneye et.al
<i>Celastrus paniculatus</i>	Celastraceae	Seed	65	R.H.Patil et.al
<i>Curcuma longa</i>	Zingiberaceae	Rhizome	300	MALihussain et.al
<i>Cymbopogon</i>	Graminaceae	Leaves	125	AAAdeneye et.al
<i>Cassia fistula</i>	Fabaceae	Legume	100,250,500	G.C.Jain et.al
<i>Citratus Coccinia indica</i>	Cucurbitaceae	Aerial Parts	100,200	KBalaraman et.al
<i>Crategus aronica</i>	Rosaceae	Fruits	10	R. Khalil, et.al
<i>Dracocephalum kotschyi</i>	Lamiaceae	Leaves	40,80,120	E.Sajjadi, et.al
<i>Eclipta prostrate</i>	Asteraceae	Leaves	100,200	Dhandapani, et.al
<i>Enicostemma littorale</i>	Gentianaceae	Whole plant	50,75	H.Vaidya, et.al
<i>Eugenia jambolana</i>	Myrtaceae	Seed	150	P.Daisy , et.al
<i>Ficus racemosa</i>	Moraceae	Bark	100,500	D.Sophia, et.al
<i>Garcinia cambogia</i>	Guttiferae	fruits	5,10	A.S.Koshy, et.al
<i>Glycyrrhiza Glabra</i>	Fabaceae	Roots	100	K.Srivastava,et.al
<i>Hibiscus rosasinesis</i>	Malvaceae	Root	500	R.Singh, et.al
<i>Ipomoea Aquatic</i>	Convolvulaceae	Leaves	200,400	Sirarama, et.al
<i>Laegenaria siceraria</i>	Cucurbitaceae	Fruits	100,200,300	B.V.Ghule, et.al
<i>Leptadenia pyrotechnica</i>	Asclepidaceae	Aerial parts	250	G.C.Jain, et.al
<i>Lycium barbarum</i>	Solanaceae	Fruit	0.25	DuLeuo, et.al
<i>Melothria maderaspatana</i>	Cucurbitaceae	Aerial parts	100,200	K.Balarama,et.al
<i>Errrygosperma</i>	Morigaceae	Leaves	200	Dhandapani,et.al
<i>Morus alba</i>	Moraceae	Leaves	7,5,15	Jingjinghen,et.al
<i>Morus indica</i>	Moraceae	Leaves	400	PradipKumar,et.al

<i>Mucuna prurines</i>	Leguminosae	Leaves	200	MuruganM., et.al
<i>Nelumbo nucifera</i>	Nelumbonaceae	Leaves	50	ToyingZhou,et.al
<i>Orthosiphon stamineus</i>	Labiatae	Bark	500,750	Umbare R.P, et.al
<i>Ocimum basilicum</i>	Labiatae	Whole plant	20	M.Eddouks , et.al
<i>Ocimum sanctum</i>	Labiatae	Leaves	4,45	Thamolwan,et.al
<i>Peucedanum pastinacifolium</i>	Apiaceae	Aerial parts	25,250	Movahedian,et.al
<i>Phyllanthus Amarus</i>	Euphorbiaceae	Leaves	300,500	RP. Umbare, et.al
<i>Plumeria rubra</i>	Apocynaceae	Flowers	250	HazeenBengum,et.al
<i>Pongamia pinnata</i>	Leguminosae	Flowers	300,100	A.Semalty , et.al
<i>Pueraria tuberosa</i>	Fabaceae	Tubers	200,400	GRamawat, et.al
<i>Rosa laevigata</i>	Rosaceae	Fruits	25,50	Y.T.Liu, et.al
<i>Ruta graveolens</i>	Rutaceae	Leaves,Plant	125	M.Ahmed, et.al
<i>Salacia reticulata.oblonga</i>	Celastraceae	Root&Barks	500	Rabbani , et.al
<i>Salicornia Herbacea</i>	Chenopodiaceae	Whole Plants	0.25,0.5	Jung-InKim, et.al
<i>Salvadora oleoides</i>	Salvadoraceae	Aerial parts	1gm,2gm	J.P.Yadav , et.al
<i>Sapindus emarginatus</i>	Sapindaceae	Pericarp	100,200	S.Jeyabalan, et.al
<i>Sesbania grandiflora</i>	Fabaceae	Leaves	200	Saravkumar,et.al
<i>Syzygium cumini</i>	Myrtaceae	Leaves	125,25,500	V.Reus, et.al
<i>Syzygium alternifolium</i>	Myrtaceae	Seed	50,250	R.B.Kastti et.al
<i>Terminalia</i>	Combretaceae	Pericarp	1.05	Maruthappan,et.all
<i>Amaranthus caudatus L</i>	Amaranthaceae	Leaves	200-400	PankajG.Jain,et all
<i>Butea monosperma Lam</i>	Fabaceae	Leaf	200 – 400	PankajG.Jain.et all
<i>Cassia fistula L</i>	Fabaeae	Stem, plant	100 – 500	PankajG.Jain et all
<i>Commiphora mukul</i>	Burseraceae	Fruit	5 – 25	PankajG.Jain et all
<i>Eclipta alpa L,</i>	Asteraceae	Flower	140 – 200	Hassk et all
<i>Eugenia jambolana Lam</i>	Myrtaceae	Fruid of Tree	100 – 200	PankajG.Jain et all
<i>Ficus racemosa L</i>	Moraceae	Whole Plant	100 – 500	PankajG.Jain et all
<i>Glycyrrhiza glabra Linn</i>	Leguminaceae	Fruid of plant	50	PankajG.Jain et all
<i>Lagenaria siceraria Standly</i>	Cucurbitaceae	Redish Tree	200 – 400	PankajG.Jain et all
<i>Moringa oleifia L</i>	Rubiaceae	Whole Plant	250 – 300	PankajG.Jain et all
<i>Moringa oleifera Lam</i>	Moringaceae	Fruid of Plant	150 – 600	PankajG.Jain et all
<i>Pterocarpus marsupium</i>	Fabaceae	Seed,Plant	150 – 300	PankajG.Jain et all
<i>Sapindus purpurea Vahl</i>	Sapindeae	Flower	100 – 200	PankajG.Jain et all
<i>Spergularia purpuria G</i>	Caryophyllaceae	Seed,Flower	10	PankajG.Jain et all
<i>Terminus arjuna Roxb</i>	Combretaceae	Flower,Stem	100 – 200	PankajG.Jain et all
<i>Vernonia anthalmintica</i>	Zingiberaceae	Seeds	0.25,0.50	N.R.Yellu
<i>Withania somnifera</i>	Solanaceae	Roots,leaf	100,200	hang Won Choi
<i>Trianthum portulacastrum</i>	Azoaceae	Whole plant	100,200	N.R.Yellu
<i>Tribulus alatus</i>	Zygophyllaceae	Aerial parts	50	W.H.El.Tantway
<i>Zingiber officinale</i>	Zingiberaceae	Rhizome	200	Bhandari

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