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A Review on the Pharmacological Aspects of *Terminalia chebula*

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Abstract: *Terminalia chebula* Retz. (Combretaceae) is called the "King of medicines" in Tibet and is always listed first in the Ayurvedic materia medica because of its extraordinary powers of healing with a wide spectrum of biological activity. A number of chemical constituents have been isolated from the plant extract that include chebulin, ellagic acid, 2,4-chebulyl-D-glucopyranose, arjunglucoside I, arjungenin, chebulinic acid, gallic acid, ethyl gallate, punicalagin, terflavin A, terchebin, luteolin and tannic acid. The plant is an important constituent of an herbal formulation, contains the name TRIPHALA which is very popular traditional medicine for chronic disorder like diabetes, nervine disorder and epilepsy. The plant has been reported to possess various pleiotropic effects such as antioxidant, antidiabetic, renoprotective, hepatoprotective, immunomodulator and prokinetic effect. The study elucidates about various pharmacological effects exhibited by this multipurpose tree.

Key words: *Terminalia chebula*, triphala, phytochemistry, pharmacology, tannin

INTRODUCTION

Medicinal plant has been a major source of therapeutic agents since ancient times. It is a known fact that humankind depends on plants as an indirect source of energy and shelter. It has been found that near about 80% of all established natural products originate from plants (Philipson, 1990). The revival of interest in natural drugs started in last decade mainly because of the wide spread belief that green medicine is healthier than synthetic products. Now-a-days, there is manifold increase in medicinal plant based industries due to the increase in the interest of use of medicinal plants throughout the world which are growing at a rate of 7-15% annually (Qaisar *et al*., 2009). Despite the major advances in the modern medicine, the development of new drugs from natural products is still considered important. This seems to be even more relevant for the developing countries, where the cost to develop a drug is prohibitive. Since 1980, the World Health Organization has been encouraging countries to identify and exploit traditional medicine and phytotherapy. The main Indian Traditional System of Medicine namely Ayurveda and Siddha are primarily plant based system. The evaluation of new drugs especially phytochemically obtained materials has again opened a vast area for research and development. As per WHO, about 80% of the population in the world relies on the traditional medicine for the treatment of various diseases. Therefore, the evaluation of rich heritage of traditional medicine is essential (Paarakh *et al*., 2008; Sandeep and Padmaa, 2009). *Terminalia chebula* Retz. is a plant species belonging to the genus *Terminalia*, family Combretaceae. It is a flowering evergreen tree called in English the black myrobalan. It is also known as Haritaki (Sanskrit and Bengali), Harad (Hindi), Karkchettu (Telugu), Kadukkaya (Tamil) and Harada (Marathi and Gujrati).

TAXONOMICAL/SCIENTIFIC CLASSIFICATION

Kingdom:	Plantae
Division:	Phanerogams
Subkingdom:	Angiosperms
Class:	Monocotyledons
Subclass:	Epigynae
Order:	Scytaminiales
Family:	Combretaceae
Genus:	*Terminalia*
Species:	*chebula*

BOTANICAL DESCRIPTION

Terminalia chebula is a medium to large size deciduous tree attaining a height of 15-24 m. Leaves ovate or elliptic with a pair of large glands at the top of the petiole. Flowers are yellowish white in terminal spikes.

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Drupes ellipsoidal, obovoid or ovoid, yellow to orange brown, wrinkled, sometimes tinged with red or black and hard when ripe, 3-5 cm long, 5 longitudinal ribbs on drying. Seeds are hard and pale yellow.

DISTRIBUTION

It is found throughout the greater parts of India chiefly in deciduous forest and areas of light rainfall, also in slightly moist forest ascending to an altitude of 1500 m in Himalayas, also in West Bengal, Assam, Bihar, Orissa, Madhya Pradesh, Maharashtra, Deccan and South India.

PROPAGATION AND CULTIVATION

It grows on variety of soils but thrives best in clay and sandy soil. The fruits ripen from November to March depending upon the locality. Mostly fallen fruits are collected in first half of January, they are dried and the seeds can be stored for one year. Seed germination is low because of hard cover and seed requires pre-sowing treatment. Best germination is obtained when the seeds are chipped at their broad end without damaging the embryo and then soaked in water for 36 h, before sowing in nursery beds. Germination starts after 15 days and continues for 3-4 weeks. The tree can be successfully raised by directly sowing the seed or by transplanting the seedlings or by stem cuttings. It is observed that transplanting of 1 year seedling grows better than cutting or direct seed sown plants. The young plant requires watering during first hot weather. Shelter is desirable. The general growth of plant is slow.

PHYTOCHEMICAL CONSTITUENTS

Terminalia chebula fruit is rich in tannic acid (Naik *et al*., 2004). The chief constituents of tannic acid are chebulic acid, chebulagic acid, corilagin and gallic acid (Bruneton, 1995; Chevallier, 1996) (Fig. 1). Tannic acid of *Terminalia chebula* is of pyrogallol (hydrolyzable) type. A group of researchers found 14 components (Fig. 1) of hydrolyzable tannins (gallic acid, chebulic acid, punicalagin, chebulanin, corilagin, neochebulinic acid, ellagic acid, chebulegic acid, chebulinic acid, 1,2,3,4,6-penta-O-galloyl-H-D-glucose,1,6-di-O-galloyl-D-glucose, casuarinin, 3,4,6-tri-O-galloyl-D-glucose and terchebulin) from *Terminalia chebula* fruits (Juang *et al*., 2004). One source lists *Terminalia chebula* as having 32% tannic acid content (Evans, 1996; Chattopadhyay and Bhattacharyya, 2007). The tannic acid content of *Terminalia chebula* varies with geographical variation (Kumar, 2006). Besides, fructose, amino acids, succinic acid, β-sitosterol, resin and purgative principle of anthroquinone and sennoside nature is also present (Creencia *et al*., 1996). Flavonol glycosides, triterpenoids, coumarin conjugated with gallic acids called chebulin as well as other phenolic compounds were also isolated (Kapoor, 1990; Kundu and Mahato, 1993). It also exhibits the ability to scavenge the 1,1-diphenyl-2-picrylhydrazyl radicals (Cheng *et al*., 2003; Naik *et al*., 2004; Khazaeli *et al*., 2009).

TRADITIONAL USES

Terminalia chebula is one of the most commonly used plants in traditional systems of medicine in Indian sub continent and is also called "King of the medicine" (Dev, 2005). The dried ripe fruit of *T. chebula* is an important Indian herb, used extensively in the indigenous system of medicine (Ayurvedic) for its homeostatic, antitussive, laxative, diuretic and cardiotonic activities (Barthakur and Arnold, 1991; Kokate *et al*., 2001). The dried fruits constitute one of the most important vegetable tanning materials and have been used in India for a long time (Krishnan, 1998). The herb is used as tonic, in hepatic and spleen enlargements and in skin diseases in Ayurvedic system of medicine (Chopra *et al*., 1956). Its paste with water is found to be anti-inflammatory, analgesic and having purifying and healing capacity for wounds. These are used as astringent in hemorrhoids as well (Chopra *et al*., 1956; Dastur, 1962). Its powder is a good astringent, dentrifice in loose gums, bleeding and ulceration in gums. The chebulic acid from *Terminalia chebula* fruit has shown antispasmodic action like that of Papaverina. It is good to increase the appetite, as digestive aid. Being a mild laxative, it is a mild herbal colon cleanser (Chopra *et al*., 1956; Nadkarni, 1976). It promotes the receiving power of five senses (Dastur, 1962). Its decoction is used as gargle in chronic cough and sore throat. It is helpful in dysurea and retention of urine. It is useful in skin disorders with discharges like allergies and other erythematous disorders (Dastur, 1962). It reduces the ill effects of the fat rich, creamy and oily food. Further it can supplement to cholesterol normalizing drugs (Sharma, 1995).

Jagtap and Karkera (1999) reported that the extract of *T. chebula* inhibited the salivary bacteria and is a potential anti-caries agent. *Terminalia* is used in Ayurveda and Sidda for constipation, chronic diarrhoea, ulcer, gastroenteritis, asthma, cough, dyspnea, dyspepsia, hemorrhoids, candidiasis, parasites, malabsorption syndrome, hepatomegaly, renal calculi, urinary discharge, tumours, skin disease, memory loss, epilepsy, diabetes, cardiovasular disease, anorexia and wounds

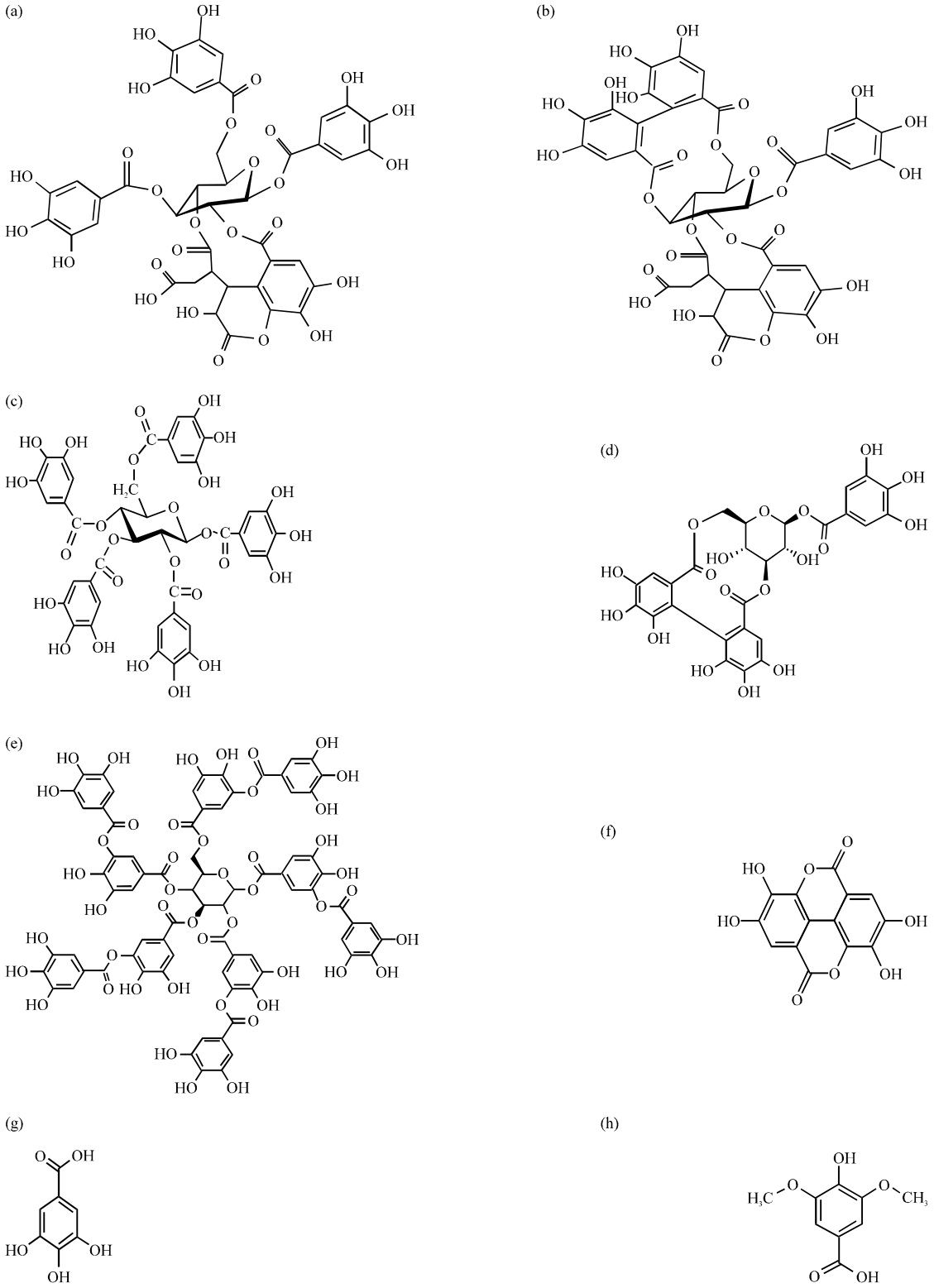

Fig. 1(a-h): Structures of some phytoconstituents isolated from *Terminalia chebula*, (a) Chebulinic acid, (b) Chebulagic acid, (c) Penta-Ogalloyl-β-D-glucoce, (d) Corialgin, (e) Tannic acid, (f) Ellagic acid, (g) Gallic acid and (h) Syringic acid

(Nadkarni, 1976). It is also reported to possess antibacterial, antifungal, antiviral, anti carcinogenic, antioxidant, hypolipidemic, hepatoprotective, cardioprotective, anti diabetic and wound healing activities (Chattopadhyay and Bhattacharyya, 2007).

Triphala, a combination of three tropical fruits preparation, comprised of equal parts of *Terminalia chebula, Emblica officinalis* and *Terminalia bellerica*, gently promotes internal detoxification of all conditions of stagnation and improves digestion and assimilation (Tambekar *et al*., 2007). Triphala is popular medicine for chronic disorder like diabetes, nervine disorder and epilepsy (Chattopadhyay and Bhattacharyya, 2007). *Terminalia chebula* is one of the ingredients in a polyherbal formulation, "Geriforte" an Ayurvedic Rasayana that is known to promote physical and mental health and improve immune power of the organism so that the body can tolerate any nature of stress (Singh *et al*., 1978; Rege *et al*., 1999).

PHARMACOLOGICAL ACTIONS

Anti-ulcerogenic activity: Animals pretreated with doses of 200 and 500 mg kg^{-1}, *Terminalia chebula* hydroalcoholic extract showed significant reduction in lesion index, total affected area and percentage of lesion in comparison with control group ($p<0.05$ and $p<0.01$) in the aspirin, ethanol and cold restraint stress-induced ulcer models. Similarly extracts increased mucus production in aspirin and ethanol-induced ulcer models. At doses of 200 and 500 mg kg^{-1}, *Terminalia chebula* extract showed antisecretory activity in pylorus ligated model which lead to a reduction in the gastric juice volume, free acidity, total acidity and significantly increased gastric pH. This activity thus lends pharmacological credence to the suggested use of the plant as a natural remedy in the treatment or management of ulcer (Raju *et al*., 2009; Sharma *et al*., 2011).

Neuroprotective activity: The methanol and water extracts of *Terminalia chebula* exhibit neuroprotective activities against H_2O_2-induced toxicity toward $PC1_2$ cells and are potential candidates for the treatment of H_2O_2-induced neurodegenerative disease. The effective neuroprotective activity of the water extract is consequence of its $^{\bullet}OH$ and H_2O_2 scavenging activities, its greatest extraction yield and its total phenolic and tannin content (Chang and Lin, 2010, 2011).

Antibacterial activity: The extract of *Terminalia chebula* shows broad spectrum activitiy (Phadke and Kulkarni, 1989). The ethanol extract at a concentration of 1 mg per disc showed maximum inhibition against *Salmonella epidermidis* followed by *Bacillus subtilis* (Kannan *et al*., 2009). The methanolic and aqueous extract of the leaf of *T. chebula* at a concentration of 10 mg mL^{-1} are well effective in producing antibacterial activities against gram-negative bacteria particularly to the agents causing gastroenteritis (Mostafa *et al*., 2011). *Terminalia chebula* exhibited antibacterial activity against a number of bacterial species (Ahmad *et al*., 1998). Malekzadeh *et al*. (2001) found that it is effective in inhibiting the urease activity of *Helicobactor pylori*, an ubiquitous bacterium implicated in the development of gastritis, ulcers and stomach cancers. Gallic acid and its ethyl ester isolated from ethanolic extract of *Terminalia chebula* showed antimicrobial activity against methicillin-resistant *Staphylococcus aureus* (Sato *et al*., 1997). It has also growth inhibitory action against *Salmonella typhi* (Rani and Khullar, 2004) and intestinal bacteria (Kim *et al*., 2006). Panthi and Chaudhary (2006) examined that extracts of *Terminalia* proves to be an effective anti-bacterial agent by forming the inhibitory zone against *Pseudomonas aeruginosa*, *P. fluorescens*, *Bacillus bronchiseptica*, *Staphylococcus aureus*, *Salmonella epidermidis*, *B. cereus*, *B. pumilis*, *Shigella boydii* and *Escherichia coli.*

Anti-convulsant activity: The ethanolic extract of *Terminalia chebula* significantly reduced the duration of seizures induced by maximal electroshock (MES). The ethanol extract in doses of 200 and 500 mg kg^{-1} conferred protection (17 and 50%, respectively) on the mice. The same doses also protected animals from pentylenetetrazole-induced tonic seizures and significantly delayed the onset of tonic seizures produced by picrotoxin (Debnath *et al*., 2010). The ethanolic extract of *Terminalia chebula* (EETC) possess anticonvulsant activity since it reduced the duration of seizures produced by maximal electroshock and delayed the latency of seizures produced by pentylenetetrazole and picrotoxin (Debnath *et al*., 2010). This provides a pharmacological justification for the traditional use of the plants fruits in the management of epilepsy in some rural parts of India.

Anti-oxidant activity: Chang and Lin (2011) evaluated that three extracts of *Terminalia chebula* are new potential sources of natural antioxidants for food and nutraceutical products. The methanol extract of *Terminalia chebula* had the greatest total triterpenoid content and exhibited good antioxidant activity in the HRP-luminol-H_2O_2 assay. The water extract appeared to have the greatest total phenolic and tannin content and showed good antioxidant activities in both $CuSO_4$-Phen-Vc-H_2O_2 and

luminol-H_2O_2 assays. The 95% ethanol extract exhibited good antioxidant activity in the pyrogallol-luminol assay. Thus, the three extracts present various levels of ROS scavenging efficiency due to differences between the mechanisms of the four ROS chemiluminescence systems. Aqueous extract of natural herb, *Terminalia chebula* inhibits xanthine/xanthine oxidase activity and is also an excellent scavenger of DPPH radicals. It is concluded that the aqueous extract of *T. chebula* acts as a potent antioxidant and since it is able to protect cellular organelles from the radiation-induced damage, it may be considered as a probable radioprotector (Na *et al*., 2004). Protective effects of an aqueous extract of *Terminalia chebula* fruit on the tert-butyl hydroperoxide (t-BHP)-induced oxidative injury was observed in cultured rat primary hepatocytes and rat liver (Lee *et al*., 2005, 2007). It has stronger antioxidant activity than alpha-tocopherol. HPLC analysis with diode array detection indicated the presence of hydroxybenzoic acid derivatives, hydroxycinnamic acid derivatives, flavonol aglycones and their glycosides, as main phenolic compounds (Saleem *et al*., 2001).

On comparison with the typical aqueous extraction method the extraction efficiency was highest for microwave treatment followed by ultrasonication (Thomas *et al*., 2012). The study revealed a 17.6% increase in the yield of phenolics and a 14% increase in the tannin content of the microwave extracts. A 20.6% increase in the antioxidant activity of the microwave extract was also obtained. The sonication extracts showed an increase of 0.6, 5 and 9.69% in the yield of phenolics, tannins and antioxidant activity, respectively.

Hepatoprotective activity: Tasduq *et al*. (2006) reported that *Terminalia chebula* extract was found to prevent the hepatotoxiocity caused by the adminstration of rifampicin (RIF), isoniazid (INH) and pyrazinamide (PZA) combination in sub-chronic model in mice (12 weeks).

Cardioprotective activity: *Terminalia chebula* extract pretreatment was found to ameliorate the effect of isoproterenol on lipid peroxide formation and retained the activities of the diagnostic marker enzymes in isoproterenol induced myocardial damage in rats (Suchalatha and Shyamadevi, 2004). Its pericap has also been reported to have cardioprotective activity in isolated frog heart model (Reddy *et al*., 1990).

Cytoprotective activity: Ethanolic extract of *Terminalia chebula* fruit exhibited significant cytoprotective effect against UV B-induced oxidative damage. These observations were attributed to the inhibitory effect of the *Terminalia chebula* extract on the age dependent shortening of the telomere length as shown by the Southern Blots of the Terminal Restriction Fragments (TRFs) of DNA extracted from sub-culture passages. Cytoprotective effect on oxidative stress and inhibitory effect on cellular aging of its fruits have also been well documented (Na *et al*., 2004).

Antidiabetic and retinoprotective activity: The anti diabetic property of medicinal plants and its relationship with their antioxidant potential have long been established (Sharma and Arya, 2011). The methanolic extract of *Terminalia chebula*, *Terminalia bellerica*, *Emblica officinalis* and their combination named 'Triphala' was found to inhibit lipid peroxide formation and scavenge hydroxyl and superoxide radicals in the diabetic rats confirming their antidiabetic potential (Sabu and Kuttan, 2002). Moreover, the antidiabetic and renoprotective effects of the chloroform extract of *Terminalia chebula* Retz. seeds in streptozotocin-induced diabetic rats was investigated. The chloroform extract of *Terminalia chebula* seeds produced dose-dependent reduction in blood glucose of diabetic rats compared with standard drug glibenclamide in both short and long term study (Rao and Nammi, 2006).

Lee *et al*. (2011) reported that *Terminalia chebula* methanolic extract (TCE) containing 2.7% chebulic acid showed preventive effects against the formation of advanced glycation end products (AGEs) and endothelial cell dysfunction. When the effects of TCE on AGE formation and on protein crossing linking by glycation with D-threose and lens crystallines were examined, TCE showed inhibitory activity in a dose-dependent manner and the concentration of 1000 μg mL^{-1} presented an activity similar to that of 5 mM aminoguanidine as a positive control. The incubation of Human Umbilical Vein Endothelial Cells (HUVEC) with 100 μg mL^{-1} of advanced glycation end products (AGEs) caused a considerable increase in THP-1 monocytic cell adhesion, but this adhesion was reduced by the treatment of TCE. This showed that TCE is a potential agent for alleviating diabetic complications.

Hypolipidaemic activity: *Terminalia chebula* was found to possess significant hypolipidaemic activity. In atherogenic diet induced hyperlipidemic model, the rats receiving treatment with *Terminalia chebula* showed significant reduction in total cholesterol, triglycerides, total protein and elevation of high density lipoprotein cholesterol. The results also suggested that *Terminalia chebula* at 1.05 and 2.10 mg kg^{-1} concentrations are an excellent lipid-lowering agent (Hasani-Ranjbar *et al*., 2010; Maruthappan and Shree, 2010).

Anti-arthritic effect: Lee *et al.* (2005) and Nair *et al.* (2010) evaluated that *Terminalia chebula* hydroalcoholic Extract (TCHE) has the potential to be used as a disease-modifying agent in treatment of rheumatoid arthritis. TCHE produced a significant inhibition of joint swelling as compared with control in both formaldehyde-induced and Complete Freund's adjuvant CFA-induced arthritis. The TCHE treatment also reduced serum TNF-α level and synovial expression of TNF-R1, IL-6 and IL-1 β. Results of acute toxicity study showed that the oral LD_{50} of TCHE was >2000 mg kg^{-1}. Chronic administration also did not produce any significant physiological changes as compared with normal rats.

Antifungal activity: An aqueous extract of *Terminalia chebula* exhibits antifungal activity against a number of dermatophytes and yeasts (Ray and Majumdar, 1976; Dutta *et al*., 1998). It is effective against the pathogenic yeast *Candida albicans* and dermatophytes *Epidermophyton*, *Floccosum*, *Microsporum gypseum* and *Trichophyton rubrum* (Vonshak *et al*., 2003).

Antiviral activity: *Terminalia chebula* fruits afforded four immunodeficiency virus type 1 (HIV-1) integrate inhibitors, gallic acid and three galloy glucoses. Their galloyl moiety plays a major role for inhibition against the 3'-processing of HIV-1 integrase of the compounds (Ahn *et al*., 2002). It protects epithelial cells against *Influenza A virus*, supporting its traditional use for aiding in recovery from acute respiratory infections (Badmaev and Nowakowski, 2000). Kurokawa *et al.* (1995) has demonstrated its therapeutic activity against *Herpes simplex virus* (HSV) both in *in vitro* and *in vivo* tests. Yukawa *et al.* (1996) investigated *Terminalia chebula*'s effect on human cytomagalovirus (CMV). They found that *Terminalia chebula* was effective in inhibiting the replication of human cytomagalovirus *in vitro* and in an AIDS model with immunosuppressed mice and concluded that it may be beneficial for the prevention of CMV diseases and immonocompronised patients. It is also helpful in sexually transmitted diseases and AIDS (Vermani and Garg, 2002).

Antimutagenic/anticarcinogenic activity: Saleem *et al.* (2002) reported the inhibitory action on cancer cell growth by the phenolics of *Terminalia chebula* fruit and found that chebulinic acid, tannic acid and ellagic acid were the growth inhibitory phenolics. Acetone extract of bark and fruit powder of *Terminalia chebula* harbors constituents with promising antimutagenic/anticarcinogenic activity (Arora *et al*., 2003).

Molluscicidal activity: Upadhyay and Singh (2011a) reported that *Terminalia chebula* fruit is a potential source of biomolluscicides against *Lymnaea acuminata*. These snails are the intermediate host of liver fluke *Fasciola gigantica* which causes 94% fascioliasis in the buffalo population of northern India (Singh and Agarwal, 1983). The active molluscicidal component of *Terminalia chebula* fruit is soluble in carbon tetrachloride, chloroform, ether, acetone and ethanol. The toxicity of ethanolic extract of *Terminalia chebula* fruit powder is higher than other extracts which indicates that the molluscicidal component present is more soluble in ethanol than other organic solvents. Upadhyay and Singh (2011a) characterized that tannic acid is the active component present in *Terminalia chebula* fruit by High Performance Liquid Chromatography. Further it was evaluated that *in vivo* and *in vitro* exposure of tannic acid significantly inhibited the acetylcholinesterase (AChE), acid phosphatase (ACP) and alkaline phosphatase (ALP) activity in the nervous tissue of *Lymnaea acuminata* (Upadhyay and Singh, 2011b).

Immunomodulatory effect: Hamada *et al.* (1997) evaluated immunosuppressive effects of gallic acid and chebulagic acid, the active phytoconstituents of *Terminalia chebula* extract, on cytotoxic T lymphocyte (CTL) mediated cytotoxicity. It has been noted that gallic acid and chebulagic acid blocked the CTL- mediated cytotoxicity. Moreover, gallic acid and chebulagic acid has been shown to inhibit the killing activity of CD8+ CTL clone at IC_{50} values of 30 and 50 μM, respectively. Additionally, the granular exocytosis in response to anti-CD3 stimulation was also blocked by gallic acid and chebulagic acid that further evidenced its immunosuppressive effect.

Anaphylactic effect: Inhibitory action of water soluble fraction of *Terminalia chebula* on systemic and local anaphylaxis has also been evaluated. The effects of the water soluble fraction of *Terminalia chebula* showed the reduction and frequency of anyphylactic shock that further confirmed the fact that it may possess a strong antianaphylactic action (Shin *et al*., 2001).

Anticaries effect: The potential of the aqueous extract of *Terminalia chebula* as an anticaries agent have also been evaluated. The extract strongly inhibited the growth, sucrose-induced adherence and glucan-induced aggregation of *Streptococcus mutans*. In addition, rinsing the mouth with the extract significantly reduced total bacterial counts and the total streptococcal counts in the saliva samples obtained after 3 h of rinsing, compared

with the counts obtained after placebo rinsing confirming its anticaries effect. The extract successfully inhibited glycolysis of salivary bacteria for up to 90 min postrinsing (Jagtap and Karkera, 1999).

Wound healing: Saha *et al.* (2011) showed that the herbal paste preparation obtained from *T. chebula* and *T. bellerica* showed significant ($p<0.05$) improvement to stimulate fibroblast function, enhance synthesis of glycoseminoglycans and deposition of collagen. Thus, it offers a distinct advantage to wound healing.

Prokinetic effect: Proper gastric emptying has been associated with the correct therapeutic effects shown by the drug therapy and thus, it is essential that the gastric emptying process remains proper. The oral administration of *Terminalia chebula* on gastric emptying has been investigated to confirm its potent prokinetic effect. Metoclopramide significantly increased the gastric emptying (76.33±12.37%; $p<0.01$) and atropine inhibited the motility percent gastric emptying (7.26±19.76%; $p<0.01$). *Terminalia chebula* extract was found to increase the percent gastric emptying (86.57±6.65%; $p<0.01$) which showed that *Terminalia chebula* extract may serve as a useful alternative to prokinetic drugs available (Tamhane *et al*., 1997).

CONCLUSION

Medicinal plants which form the backbone of traditional medicine, have in the last few decades been the subject for very intense pharmacological studies. This has been brought about by the acknowledgement of the value of medicinal plants as potential sources of new compounds of therapeutic value. *Terminalia chebula* has been extensively used in Ayurveda, Unani and Homoeopathic medicine and has become a cynosure of modern medicine. *Terminalia chebula* is a highly valued plant, distributed in many countries of the tropics and subtropics. It has an impressive range of medicinal uses with high nutritional value. This is an effort to streamline the pharmacological properties of the plant. Keeping in view the reports of its potential effectiveness against diabetes, it is assumed that the botanicals have a major role to play in the management of diabetes which needs further exploration for necessary development of drugs and nutraceuticals from natural resources. However, the knowledge was mainly considered as alternative science and an herbal remedy. *Terminalia chebula* is a true miracle of nature, obviously because it has so many benefits. Modern medical science has only just begun to accept their long held knowledge. One can hope that in the future, good sense will prevail and the true potential of this tree and its many products will be realized.

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