Neem: Powerhouse of phytochemicals with anti – diabetic properties

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Abstract

Neem, "the bitter gem" is one of the most valued trees with many medicinal applications. The scientific name of neem is *Azadiracthta indica* and belongs to Meliaceae family. It is the world's most studied tree in the world and most promising one in the 21st century. Every part of the tree has medicinal value, such as flowers, leaves, neem cake, fruits and seed oil. Almost 300 different phytochemicals have been found in neem tree with versatile application. The aqueous and alcoholic leaf extract of neem is accounted for to have different pharmacological activities like anti-inflamatory, hypolipidaemic, immunostimulant, hepatoprotective and hypoglycaemic impacts. Considering the pharmacological importance of neem, different studies reviewed in this chapter confirming the immense possibilities of neem for prevention and treatment of diabetes. Neem tree is a rich source of flavonoids, terpenoids, tannins, saponins, anthraquinones, sterols and alkaloids which helps in diabetes management.

Keywords: Neem, leaf extract, bio active component, Diabetes

Introduction:

For millennia, the primary source of medicine has been the agents that are originating from natural sources especially the plant sources. *Azadirachta indica* is an evergreen tree cultivated in he Indian subcontinent which is popularly known as Indian neem (Margosa tree) or Indian Lilac. Since long back, Ayurveda has considered neem (*A. indica*) as a cure for many ailments, predominantly due to its superb antimicrobial activity (Jadge *et al*. 2008). Neem has been used in ayurveda and homeopathic medicines and has become a cynosure of modern medicine. The neem tree's Sanskrit name is 'Arishtha' which means 'Reliever of Sickness', also regarded as 'Sarba-roga-nibarini'. In India, the neem tree is still known as 'Village dispensary'. During the most recent fifty years, extensive advancement has been accomplished with respect to the biological and therapeutic utilizations of neem. Presently it is considered to be an essential source of unique natural ingredients, both for the development of medicines against different diseases and also for the production of industrial goods. The therapeutic value of the medicinal plant is because of some bio-chemical substance that has a definite physiological activity on the human body. The bioactive isolates of the plant include: nimbin, nimbolide, azadirachtin, meliacin, gedunin, valassin, salanin etc. The bitterness of neem seed oil is created by Meliacin. Tignic acid (5-methyl-2-butanoic acid), extracted from neem seed is responsible for characteristics odour of the oil (Uko and Kamalu, 2001; Lale, 2002). These

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