PHYTOCONSTITUENTS AS POSSIBLE CANDIDATES FOR TREATMENT OF HYPERTENSION: A MINI REVIEW

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ABSTRACT
The developing risks that are linked with heart disorders poses a great community health problem in developing and developing countries. Presently, management of high blood pressure problem involves use of drugs that might be showing some adverse effects. Also, these drugs are not always affordable for low income groups. Therefore, many low income families rely on traditional medicinal systems employing medicinal plants. Many literature compilations have reported medicinal plants to possess various pharmacological activities. The aim of this review is to study few medicinal plants which are reported to have antihypertensive effect.

Keywords: Hypertension, phytoconstituent, medicinal plants

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INTRODUCTION
Hypertension is a major disorder affecting quality of life of people. As per reports of WHO, above 1 billion people across globe are suffering from hypertension and according to estimates, 1.25 billion people will get affected by it approximately in 2025. Although regarded as disease of developed countries, it is rapidly becoming a concerning disorder in developing countries as well. (Ibrahim & Damasceno, 2012)

In India, occurrence of hypertension is reported to be 29.8 %.(Anchala et al., 2014)World Health Organization defines hypertension as “a condition in which the blood vessels have persistently raised pressure”. Control of hypertension expects to bring down raised blood pressure under 140/90 mm Hg. It may be control by drug use and non-pharmacological methods. Drugs belonging to the class of beta blockers, ACE inhibitors, diuretics and Calcium channel blockers are forefront therapies for hypertension management. Prescribers also advice changing daily routine of life may serve as a good option for hypertension management involving weight maintenance in optimum range, avoiding alcohol consumption, good physical activity, stopping act of smoking and good dietary practices.(Abdul Rashid, Khalid, & Chia, 2011)

Although these approaches are major line of treatment, phytochemicals are being increasingly explored for their efficacy in treatment of hypertension. Reason for increased interest is the ease of availability of herbs and their

efficiency in hypertension management. So, the aim of this review article is compilation of medicinal plants consisting of phytoconstituents which show promise in management of hypertension based on traditional knowledge and pharmacological studies. Following are few medicinal plants showing promise in hypertension management.

**Adenopodiumspicata**

It is a plant of Leguminosae family. It is found in Central America. It is consisting of saponin glycosides mainly which are thought to possess antihypertensive action as they are ACE inhibitors. ACE inhibitory action was observed in ethanolic leaf extracts in concentration of 25-75 mcg/ml. (Balogun & Ashafa, 2019)

**Agapanthus africanus**

This plant belongs to family Amaryllidaceae. It has been traditionally used for treatment of hypertension. It owes its characteristic features due to saponin glycosides present in it. Extracts of leaf of A. africanus in concentration 25mcg/ml is found to exhibit ACE inhibitory activity in vitro. (Van Wyk, 2011)

**Tectonagrandis**

It is a common herb found in Indonesia. The active constituent of this herb is obtusifolin-2-glucoside. It has been traditionally used in management of gestational hypertension. *In silico* approach has shown that this phytoconstituent is a good candidate for gestational hypertension management with Calcium channel blocker activity. (Azizah, Suselo, Muthmainah, & Indarto, 2018)

**Inulaviscosa**

It is a medicinal plant traditionally used Morocco for the purpose of hypertension treatment. Cynarin as well as chlorogenic acid are major constituents of this plant. Both these are believed to possess effect of vasodilation. Methanolic leaf extract has been reported to exhibit its effect by vasodilation of endothelium. (Hakkou et al., 2017)

**Arganiaspinosa**

It is a plant belonging to family Sapotaceae and grows in sub tropical zones. Argan oil which is extracted from Arganiaspinosa has been found to possess therapeutic effects like antihypertensive effect, hepatoprotective effect and antineoplastic effects. (Khallouki et al, 2017)

**Viscumarticulatum**

It is medicinal plant belonging to family Santalaceae. Traditionally it has been used in Ayurvedic, Siddha and Chinese system for its various therapeutic effects. In addition to many other uses, it has been reported for its antihypertensive action in Chinese system of medicine and some Himalayan tribes of India. The antihypertensive effect is due to oleanolic acid. (Patel & Singh, 2018)

**Caleaglomerata**

It is a medicinal plant that belong to Asteraceae family. It has been reported to be used as traditional medicine for use in hypertension. Its ethanolic extracts of aerial parts have been shown to produce antihypertensive action in Wistar rats. (Lima, de Jesus Souza, da Silva, & Biavatti, 2018)

**Echinodorusgrandifloruus**

It is a native Brazilian medicinal plant of family Alismataceae. The crude extract of leaves of this plant is reported to possess antihypertensive effects as verified by results obtained from experiments on Wistar rats. (Marques, Provance, Kaplan, & Figueiredo, 2017)

**Allium cepa and Allium sativum**

These are plants of medicinal value that belong to family Amaryllidaceae. It is indigenous to Central Asia. The bioactive constituent of Allium is allicin that may responsible for its antihypertensive effects by mode of reduction by decreasing circulating angiotensin II. (De Lange-Jacobs, Shaikh-Kader, Thomas, & Nyakudya, 2020)

**Curcuma longa**

Curcuma longa is plant with medicinal values and belongs to family Zingiberaceae. The active biocomponent of this plant is curcumin. It has been found to possess antihypertensive effects. (Kim, Kim, & Ha, 2019)

**Conclusions and Future Prospects**

With an eye on side effects caused by use drugs used for hypertension and antihypertensive activity of bioactive compounds obtained from plants, they may serve as possible candidates for hypertension treatment. Various mechanisms have been proposed for such biomolecules possessing antihypertensive activity.

With knowledge of these biomolecules, further studies may be conducted to include these biomolecules in therapy along with side effect reduction.

**BIBLIOGRAPHY**


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