



Review Article

A CRITICAL REVIEW ON MEDOHARA (ANTIDYSLIPIDAEMIC) ACTION OF STEM BARK OF CIRABILWA (*HOLOPTELEA INTEGRIFOLIA* PLANCH.) WITH SPECIAL REFERENCE TO AYURVEDIC AND MODERN ASPECT

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ABSTRACT

Dyslipidaemia (*Medovikara*) is a major health problem in both developed and developing nations. It leads to Atherosclerosis, which is a major factor in the development of Cardiovascular diseases. Modern medications available to Dyslipidaemia are potentially hazardous. *Cirabilwa* (*Holoptelea integrifolia* Planch.) is a large deciduous tree distributed throughout the greater part of India upto an altitude of 2000 ft. It is used in the treatment of various diseases including Dyspepsia, Flatulence, Colic, Helminthiasis, Vomiting, Skin diseases, Diabetes Mellitus, Haemorrhoids and Rheumatism. It is included in many *Medohara ganas* (groups of drugs having anti dyslipidaemic action) like *Lekhana mahakashaya* group (group of drugs that dessicate and scrape away the morbid tissues especially *Meda* and *Kapha*) of *Caraka Samhita*; *Shleshma samsamana* (groups of drugs which decrease *Kapha*), several *Kaphamedohara* groups (groups of drugs which decrease *Meda* and *Kapha*) like *Saalaradi*, *Varanadi*, *Aragwadadi*, *Asanadi* and *Arkadi* of *Susruta Samhita*; *Asanadi*, *Varanadi*, *Aragwadadi* and *Arkadi* groups of *Ashtanga Hridaya*. This is an attempt made to explain the *Medohara* action of *Cirabilwa* according to Ayurvedic as well as modern aspect.

KEYWORDS: *Cirabilwa*, *Medohara*, Dyslipidaemia, antidyslipidaemic, *Holoptelea integrifolia*.

INTRODUCTION

Non communicable diseases (NCDs) are the major killer diseases in the world today, causing more deaths than all other diseases combined. The first WHO Global status report on NCDs 2010, confirms that 36.1 million people died from NCDs in 2008. Nearly 80% of NCD deaths occur in low and middle income countries. NCDs are the most frequent cause of death in most countries except Africa. WHO predicts that NCDs will cause over three quarters of all deaths in 2030^[1]. India is also passing through an epidemiological and demographic transition leading to the emergence of NCDs as major health problem, estimated to account for 53% of all deaths and & 44% of disability -adjusted life-years lost in 2005.

Traditional Ayurvedic approaches to health have become all the more relevant in the present century in the context of universal rise of NCDs. For these, Ayurveda has much to offer in terms of prevention, treatment, care and comfort. Ayurvedic approach to these conditions is holistic, which is a combination of diet, exercise, awareness of environmental influences and the use of medications. Ayurvedic science is targeting the long term well being of the diseased and not merely an instant relief. This aim is forgotten by the modern medicine, which

gives only a temporary relief and long term side effects usually.

Dyslipidaemia is an extremely important condition, principally because of its contribution to atherogenesis and as it is an independent and modifiable risk factor for Cardio Vascular Disease (CVD), together with high BP, smoking and sedentary habits. The relation of Coronary Heart Disease and Hyperlipidaemia was a hypothesis until it was proved by the 4S study namely 'The Scandanavian Simvastatin Survival Study' which was done during 1989-1994^[2]. The ever increasing epidemic nature of the disease prompts the scientific researchers to understand the dimension of the condition.

It is here the greatness of Ayurvedic science resides, encoding all facts of life and disease, imbibing the practical implication of treatment based on the proper insight of the science. From Ayurvedic classics, an exact correlation of Dyslipidaemia to any disease cannot be made. Nomenclature and classification of diseases are not so important in Ayurveda^[3]. Scientific treatment can be adopted by analyzing *Dosha dooshya vikriti* (imbalance of functional and structural entities of our body).^[4]

The indulgence of anomalous diet and activities leads to vitiation of *Srotases* (channels in the body). It is the root cause for all diseases. The abnormality in *Dhatu* (tissues) brings about abnormality in *Srotases* and vice-versa^[5]. This leads to impairment of *Agni* (digestive fire) and formation of *Ama* (undigested food)^[6]. This is followed by faulty *Dhatuparinama* (formation of tissues) and vitiated *Medodhatu* (fatty tissue) is formed^[7].

Cirabilwa is a drug known from *Samhita* period, but detailed description is seen in *Nighantus* (different textbooks of Dravyagunavijnan). It possesses *Tikta*, *Kasaya rasa* (bitter and astringent taste), *Laghu*, *Rooksha guna* (easy to digest and is dry), *Ushna veerya* (hot potency) and *Katu vipaka* (transformation into pungent after digestion)^[8]. It is included in many *medohara ganas* (groups of drugs having anti dyslipidaemic action) like *Lekhana Mahakashaya* group (group of drugs that dessicate and scrape away the morbid tissues especially *meda* and *Kapha*) of *Caraka Samhita*^[9]; *Shleshma Samsamana* (groups of drugs which decrease *kapha*), several *Kaphamedohara* groups (groups of drugs which decrease *Meda* and *Kapha*) like *Saalaradi*, *Varanadi*, *Aragwadadi*, *Asanadi* and *Arkadi* of *Susruta Samhita*^[10]; *Asanadi*, *Varanadi*, *Aragwadadi* and *Arkadi* groups of *Ashtanga Hridaya*^[11]. So an attempt was made to explain the *Medohara* action of *Cirabilwa* according to Ayurvedic as well as modern aspect.

Methodology

Literary review of *Cirabilwa* was taken from Ayurvedic classical texts viz. *Samhita* and *Nighantus*, different textbooks of Dravyagunavijnan for comprehensive information of the drug.

OBSERVATIONS

Etymology

The term *Cirabilwa* is derived from two root words *Cira* and *Vila*. *Cira* denotes a long duration /chronic. *Vila* denotes '*Bhedana*' which means the act of dispelling^[12]. Thus the word *Cirabilwa* means that which dispels chronic / long standing (diseases).

Vernacular Names

Sans.- *Cirabilwa*; **Eng.-** Indian Elm; **Hindi-** Chilbil; **Marathi-** Papara; **Punj.-** Arjan; **Guj.-** Kanjho; **Kannada-** Tapasīgida, **Tel.-** Tapasi; **Tam.-** Avali; **Mal.-** Avil^[13]

Taxonomical Classification^[14]

Domain	:	<i>Eukaryota</i>
Kingdom	:	<i>Plantae</i>
Subkingdom	:	<i>Viridaplantae</i>
Phylum	:	<i>Tracheophyta</i>
Subphylum	:	<i>Euphyllophytina</i>

Infraphylum	:	<i>Radiatopses</i>
Class	:	<i>Magnoliopsida</i>
Subclass	:	<i>Dilleniidae</i>
Super order	:	<i>Urticanae</i>
Order	:	<i>Urticales</i>
Family	:	<i>Ulmaceae</i>
Genus	:	<i>Holoptelea</i>
Species	:	<i>integrifolia</i>

Habitat and Morphology^[15]

It is a large spreading almost glabrous deciduous tree attaining a height of 15-18m, trunk upto 2 metres or more in girth near the ground level, covered with grey pustular mucilaginous bark (smooth and light coloured when young but becoming thick, greyish flaky and pustular in old trees), the branches quite greyish white and younger shoots tomentose. Leaves simple, alternate, distichous, elliptic or ovate, entire, glabrous, acuminate, penninerved with cordate or rounded base. Flowers are small, greenish, inconspicuous arranged in racemes or fascicles that arise from the axils of scars of fallen leaves of the previous years growth; fruits are flattened, thin, nearly orbicular, indehiscent samaroids, about 2.5 cms in diameter. The new leaves appear in March and April soon after the tree has flowered and the fruit which ripens during the hot season remains for a long time.

Pharmacological uses^[16]

Anti inflammatory, digestive, carminative, laxative, anthelmintic, depurative, revulsive and urinary astringent. They are useful in vitiated conditions of *Kapha* and *Pitta*, inflammations, dyspepsia, flatulence, colic, helminthiasis, vomiting, skin diseases, leprosy, diabetes, haemorrhoids and rheumatism.

Phytochemicals^[17]

Friedelin, friedalan -3-β-ol, epifriedelinol, 2-Aminonaphthaquinone, β -sitosterol and its β -D-glucoside isolated from stem bark. Hexacosanol, octacosanol, β -sitosterol and β -amyrin were isolated from leaves. 2- α, 3 -α-dihydroxyolean-12-en-28-oic acid, β-sitosterol and hedaregenin were isolated from heart wood.

Discussion

Dyslipidaemia is a term used to denote abnormal fractions of circulating lipids or lipoproteins in blood. It is an important health problem and a major risk factor for the development of Coronary Heart Diseases(CHD). Modern medications available for dyslipideamia are very costly and are potentially hazardous. So there is a need to find an effective, safe and cheap drug for this condition.

Dyslipidaemia as such is not mentioned in Ayurvedic classical texts. It can be considered as a particular condition of increased *Medodhatu* associated with increased *Kapha dosha* and deranged *Kleda* in the body.

One basic principle of Ayurveda is that similar factors cause increase and dissimilar factors cause decrease of our body constituents (*Dosha, Dhatu* and *Mala*). Based on this principle, *Medohara* effect of *Cirabilwa* can be explained. *Medovikara* is caused by the excessive indulgence of factors causing increase of *Medodhatu*, i.e., Foods having *Madhura rasa* (sweet taste), *Seeta veerya* (cold potency), *Guru snigdha gunas* (which is difficult to digest and is unctous) and sedentary life style. Thus treatment should be with drugs having *Tikta katu kashaya rasa, Ushna veerya* and *Laghu rooksha guna*. *Cirabilwa* is having *Tikta Kashaya rasa, Laghu rooksha guna, Ushna veerya* and *Katu vipaka*, thus possessing all the above properties.

Drugs having *Katu rasa, Ushna veerya* and *Laghu guna* can increase the strength of *Agni* which may act on improperly digested food. These properties can pacify *Kapha*, the main *Dosha* involved in *Medovikara* and dessicate vitiated *Meda* and *Kleda*, which are the contributing factors of *Medovikara*. Thus it can remove the obstruction of channels in our body.

Laghu rooksha guna and *Katu rasa* can act as *Lekhana* (dessicate and scrape away the morbid *Dhatus* and *Malas* especially *Kapha* and *Meda*) and *chedana* (drugs which forcefully detach the morbid *Doshas*). *Cirabilwa* is included in *Lekhana Mahakashaya* group of *Caraka Samhita*; *Shleshma samsamana*, several *Kaphamedohara* groups like *Saalasaradi, Varanadi, Aragwadadi, Asanadi* and *Arkadi* of *Susruta Samhita*; *Asanadi, Varanadi, Aragwadadi* and *Arkadi* groups of *Ashtanga Hridaya*. Drugs having these properties and *Ushna veerya* can also act as *Pramathi* (drugs that expel cumulative *mala* from channels). Hence the mode of action of *Cirabilwa* can be attributed principally to its *Laghu rooksha guna, Ushna veerya, Tikta kashaya rasa* and

Katu vipaka, with which it exerts its *Medohara karma* by means of *Lekhana, Chedana* and *Pramathi* modes.

It is to be noted that β -sitosterol, a chemical constituent of *Cirabilwa* is used as a dietary supplement to lower blood cholesterol. β -Sitosterol inhibits cholesterol absorption in the intestine. When the sterol is absorbed in the intestine, it is transported by lipoproteins and incorporated into the cellular membrane. Phytosterols and phytostanols both inhibit the uptake of dietary and biliary cholesterol, decreasing the levels of LDL and serum total cholesterol. Because the structure of β -sitosterol is very similar to that of cholesterol, β -sitosterol takes the place of dietary and biliary cholesterol in micelles produced in the intestinal lumen. This causes less cholesterol absorption in the body.

CONCLUSION

Non communicable diseases (NCDs) are the major killer diseases in the world today, causing more deaths than all other diseases combined. Traditional Ayurvedic approaches to health have become all the more relevant in the present century in the context of universal rise of NCDs. For these, Ayurveda has much to offer in terms of prevention, treatment, care and comfort. Dyslipidaemia is an extremely important condition, principally because of its contribution to atherogenesis and as it is an independent and modifiable risk factor for Cardio Vascular Disease (CVD), together with high BP, smoking and sedentary habits. Dyslipidaemia as such is not mentioned in Ayurvedic classical texts. It can be considered as a particular condition of increased *Medodhatu* associated with increased *Kapha dosha* and deranged *Kleda* in the body. Thus treatment should be with drugs having *Tika katu kashaya rasa, Ushna veerya* and *Laghu rooksha guna*. The study drug *Cirabilwa* is having *Tika kashaya rasa, Laghu rooksha guna, Ushna veerya* and *Katu vipaka*, thus possessing all the above properties. Moreover β -sitosterol, a chemical constituent of *Cirabilwa* is used as a dietary supplement to lower blood cholesterol



Fig.1.1. *Holoptelea integrifolia*



Fig.1.2. Bark of *H.integrifolia*



Fig.1.3. Leaves of *H.integrifolia*



Fig.1.4. Inflorescence of *H. integrifolia*



Fig.1.5. Fruits of *H. integrifolia*



Fig. 1.6. Stem bark of *H. integrifolia*

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