

LITERATURE REVIEW ON ZINGIBERACEAE FAMILY FOR ITS VAST ROLE IN THE MANAGEMENT OF *RATHTHAPITHAM* (HYPERTENSION)

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ABSTRACT

Herbs of Family Zingiberaceae are being widely used as a raw drug in Siddha medicine formulations. It has vast variety of medicinal uses based on their aromatic properties. The Siddha system of medicine is a traditional system generated from Dravidian culture and being served to mankind for more than 2000 years in combating diseases and the maintaining physical, mental and spiritual health. Initially we have collected the medicines to treat *Raththapitham* from our Siddha literatures. *Raththam* in Siddha refers to blood. *Raththapitham* in Siddha refers to elevation of *Pitham* in blood. Elevation of *Pitham* in blood results in Hypertension. *Raththapitham* may be co related with Hypertension. Eventually we can found that most herbs used to treat *Raththapitham* were from Zingiberaceae. The herbs of Zingiberaceae are used in treating various ailments like diarrhoea, sinusitis, fever, cancer and so on. In this work we have specified the role of those herbs in treating *Raththapitham*. Hypertension affects about one billion people worldwide. Hypertension is the major cause for cardiovascular diseases worldwide. Globally Cardiovascular disease accounts for approximately 17 million deaths a year. Nearly one third of these Hypertension accounts for about 9.4 million deaths worldwide every year. Hypertension is responsible for at least 45% of deaths due to Heart disease. In 2008, worldwide, approximately 40% of adults aged 25 and above had been diagnosed with Hypertension; the number of people with the condition rose from 600 million in 1980 to 1 billion in 2008. In this work we have notified the wide spread usage of selected 8 herbs of Zingiberaceae to treat *Raththapitham* (Hypertension).

KEYWORDS

Siddha Medicine, Zingiberaceae, *Raththapitham*, Hypertension , Turmeric

INTRODUCTION

Raththapitham is considered as one among the 40 types of pithams in the Siddha system of medicine. *Raththa pitham* is also called as *Kuruthiazal noi*. *Raththa pitham* may be co related with Hypertension. Complication of *Raththa pitha noi* is characterized by oozing out of blood through the *Nava thuvarangal* (Nine openings) of the body. This is due to the elevation of *Pitham* from its normal range which may lead to derangement in the equilibrium of *Tridosha* . In this work we have reviewed and presented the importance of Zingiberaceae herbs in treating *Raththapitham*(Hypertension).

METHODOLOGY

An intial survey of plants having efficacy against *Raththapitham* (Hypertension) was listed. This list was derived from referencing around 60 Texts, Reference books, and journals etc. while the plants were classified according to their family to which they belong. The family “Zingiberaceae “was found to have the maximum number of herbs effective against the particular entity *Raththapitham*.

FAMILY DESCRIPTION OF ZINGIBERACEAE

SCIENTIFIC CLASSIFICATION

Kingdom	:	Plantae
Clade	:	Angiosperms
Clade	:	Monocots
Clade	:	Commelinids
Order	:	Zingiberales
Family	:	Zingiberaceae

Zingiberaceae or the ginger family is a family of flowering plants made up of about 50 genera with a total of about 1600 known species of aromatic perennial herbs with creeping horizontal or tuberous rhizomes distributed throughout tropical Africa, Asia, and the Americas.

Zingiberaceae family plants are well identified with their aromatic smell. Aroma of this plant is due to the volatile active principles present in these plants. Recent studies reveal that the herbs of zingiberaceae have antibacterial, antioxidant, anticancer properties. In our work we have notified the usage of the role of few members of Zingiberaceae in treating *Raththapitham*.

HERBS OF ZINGIBERACEAE USED TO TREAT RATHTHAPITHAM

- *ELAM* (*Elettaria cardamomum*)
- *SUKKU* (*Zingiber officinalis*)
- *CHITHARATHAI* (*Alpinia officinarum*)
- *PERARATHAI* (*Alpinia galanga*)
- *KOSTAM* (*Cheilocostus speciosus*)
- *KACHOOL -KICHCHILI KILANGU* (*Curcuma zedoaria*)
- *MANJAL* (*Curcuma longa*)
- *KASTURI MANJAL* (*Curcuma aromatica*)

PART USED

In the above mentioned plants, the used part is Rhizome, except for *ELAM* (Cardamomum) the part used is seeds.

SIMILARITIES IN SIDDHA PHARMACODYNAMICS OF THESE HERBS

The herbs namely *Elam* (Cardamomum), *Sukku* (Dried ginger), *Chitharathai* (Lesser galangal) and *Perarathai* (Greater galangal) have similar Siddha Pharmacodynamic property as follows

Suvai (Taste) : *Kaarppu* (Strong pungent)

Pirivu (Subtaste) : *Kaarppu* (Strong pungent)

Thanmai (Thermo property) : *Veppam* (Heat stimulator)

The others herbs namely *Kachool* (White turmeric), *Kostam* (Crepe Ginger), *Kastori manjal* (Wild turmeric) has a variation in *Suvai* (Taste) From other herbs as

For *Kastori manjal*,

Suvai (Taste) : *Kaippu* (Bitterness)

for Kachool,

Suvai (Taste) : *Kaippu* (Bitterness) and *Arpa kaaram* (Mild pungent)

For Kostam,

Suvai (Taste) : *Kaippu* (Bitterness) and *Viruvirupu* (Briskness)

While *Manjal* (Turmeric) is a special drug . It differs from other herbs as it has 2 tastes namely *Kaarppu* (Strong Pungent) and *Kaippu* (Bitterness). Due to the property of having 2 tastes it comes under the category called *Prabhavam*(Special drugs). This *Prabhavam* property notes for its action in treating various Ailments.

***Prabhavam* (Special drugs)**

Some drugs have their action against their own taste, characteristics, effect and the ultimate taste. These are called special drugs. This may be due to the presence of some additional tastes and characteristics in the drug other than the actual taste in the drug.

BASIC PHYTOCHEMICALS OF HERBALS OF ZINGIBERACEAE

The herbals of Zingiberaceae have some Phytochemicals which accounts for their volatility and medicinal property. Those important Phytochemicals are gingerols, Isogingerol, gingerdiol gingerdione, Shogaol, Paradol, beta-sitosterol, Curcumin, Curcuminoids, tumerone, atlantone and zingiberone . These Phyto-chemicals accounts for the antibacterial , anti inflammatory effects and so on.

HERBAL FORMULATIONS TO TREAT RATHTHAPITHAM (EXTERNAL MEDICINES)

SL.NO	NAME OF THE FORMULATION	MAIN INGREDIENTS	METHOD OF APPLICATION	INDICATIONS
1	<i>Sirukeerai thailam</i> (Medicated Oil)	<i>Sirukeerai saru</i> (<i>Amaranthus tricolor</i>) <i>Chatharathai</i> (<i>Alpinia officinarum</i>) <i>Santhanam</i> (<i>Santalum album</i>)	Bath oil	<i>Raththapitham</i> (Hypertension) , <i>Sagala piththa noigal</i> (all types of Piththa diseases)

2	<i>Puli ennai</i> (Medicated oil)	<i>Ellumichai sarru</i> (<i>Citrus limon</i>) <i>Elam</i> (<i>Elettaria cardamomum</i>) <i>Elaneer</i> (<i>Cocus nucifera</i>)	Bath oil	<i>Sagalapitham</i> , (all piththa diseases) <i>Raththapitham</i> , (Hypertension) <i>Thookaminmai</i> , (Insomnia)
3	<i>Raththapithathuku marunthu</i> (a paste)	<i>Aavin Paal</i> (Cow's milk), <i>Nei</i> (Cow's ghee), <i>Elam</i> (<i>Elettaria cardamomum</i>) <i>Perarathai</i> (<i>Alpinia galanga</i>)	Nasal drops and as ear drops	<i>Raththapitham</i> (Hypertension)

HERBAL FORMULATIONS TO TREAT RATHTHA PITHAM (INTERNAL MEDICINES)

SL. NO	NAME OF THE FORMULATION	MAIN INGREDIENTS	DOSAGE AND ADJUVANT	INDICATIONS
1	<i>Piththari chooranam</i> (fine powder)	<i>Kachool</i> (<i>Curcuma zedoaria</i>) <i>Venthayam</i> (<i>Trigonella foenumgraceum</i>) <i>Nannari</i> (<i>Hemidesmus indicus</i>) <i>Sevvelaneer</i> (<i>Cocus nucifera</i>) <i>Kandhagam</i> (Sulphur)	<i>Muviralalavu</i> (A Pinch)	<i>Raththa pitham</i> (Hypertension) <i>Sulatrum pitham</i> (Giddiness)
2	<i>Ela marunthu</i> (Base powder)	<i>Elam</i> (<i>Elettaria cardamomum</i>) <i>Ellavangam</i> (<i>Eugenia caryophyllus</i>) <i>Nelliparuppu</i> (<i>Phyllanthus emblica</i>) <i>Pasumpaal</i> (Cow's milk)	-	<i>Raththapitham</i> (Hypertension)
3	<i>Paarangiyathi chooranam</i> (fine powder)	<i>Chittarathai</i> (<i>Alpinia officinarum</i>) <i>Kostam</i> (<i>Cheilocostus speciosus</i>) <i>Champaga poo</i> (<i>Michelia champaca</i>)	With <i>Nei</i> (Ghee) or <i>Theen</i> (honey) or water	<i>Sagala pitha noigal</i> (All pithatha diseases), <i>Vikkal</i> (Hiccups), <i>Saththi</i> (Vomiting)

4	<i>Elathi chooranam</i> (fine powder)	<i>Elam</i> (<i>Elletaria cardamomum</i>) <i>Kostam</i> (<i>Cheilocostus speciosus</i>) <i>Santhanam</i> (<i>Santalum album</i>) <i>Perrechai</i> (<i>Phoenix dactylifera</i>)	With <i>Athimathura paal</i> (with extract of <i>Aconitum heterophyllum</i>) or With <i>Ellaneer</i> (Tender Coconut Water)	<i>Raththa pitham</i> (Hypertension) <i>Vipuruthi</i> (Tumours)
5	<i>Amirtha elathi chooranam</i> (fine powder)	<i>Elam</i> (<i>Elletaria cardamomum</i>) <i>Kastori manjal</i> (<i>Curcuma aromatica</i>) <i>Kostam</i> (<i>Cheilocostus speciosus</i>)	With <i>Amutha sarkarai</i> (Extract of <i>Tinospora cordifolia</i>)	<i>Rathatha pitham</i> (Hypertension) , <i>Vellai</i> (<i>Leucorrhea</i>)
6	<i>Pithasaangari chooranam</i> (fine powder)	<i>Manjal</i> (<i>Curcuma longa</i>) <i>Virali</i> (<i>Dodonaea viscosa</i>) <i>Ailli</i> (<i>Nymphaea nouchali</i>) <i>Vellari ver</i> (<i>Cucurbita sativus</i>)	With <i>Thuthuvalai pala saaru</i> (with fruit juice of <i>Solanum trilobatum</i>)	<i>Sagala pitha roogam</i> (all kind of piththa diseases), <i>Raththa pitham</i> (Hypertension),
7	<i>Thamarai valaya nei</i> (Medicated ghee)	<i>Thamarai valayam</i> (<i>Nelumbo nucifera</i>) <i>Kostam</i> (<i>Cheilocostus speciosus</i>) , <i>Kastori manjal</i> (<i>Curcuma aromatica</i>) <i>Passunei</i> (Cow's ghee)	-	<i>Raththa pitham</i> (Hypertension) , <i>Kaikaal erivu</i> (Peripheral Neuritis)
8	<i>Ponankanni nei</i> (Medicated ghee)	<i>Ponankanni</i> (<i>Alternanthera sessilis</i>) <i>Pachchai kachool</i> (<i>Curcuma zedoaria</i>) <i>Omam</i> (<i>Trachyspermum ammi</i>) <i>Nei</i> (cow's ghee)	-	<i>Sagala pitham</i> (All piththa diseases), <i>Kabalamuru piththa noi</i> (Piththa disease of head)
9	<i>Uthirapalathi kirutham</i> (Medicated ghee)	<i>Elam</i> (<i>Elletaria cardamomum</i>), <i>Seeragam</i> (<i>Cuminum cyminum</i>) , <i>Santhanam</i> (<i>Santalum album</i>)	With <i>Pasum paal</i> (cow's milk)	<i>Raththapitham</i> (Hypertension), <i>Perumpadu</i> (Menorrhagia)

10	<i>Karchoorathi ilagam</i> (Confectionery)	<i>Perricham palam</i> (<i>Phoenix dactylifera</i>), <i>Kodi munthiri</i> (<i>Vitis vinifera</i>), <i>Ellam</i> (<i>Elletaria cardamomum</i>)	With <i>Rasapaspam</i> for a <i>Mandalam</i> (40 days)	<i>Raththa pitham</i> (Hypertension) , 99 <i>Pitha noigal</i> (99 Piththa diseases) , <i>Raththa vanthi</i> (Haemptemesis)
11	<i>Karchoorathi raasayanam</i> (a paste form)	<i>Perrincham palam</i> (<i>Phoenix dactylifera</i>), <i>Kostam</i> (<i>Cheilocostus speciosus</i>) , <i>Erumai paal</i> (Buffalo's milk)	with <i>Raaja miruthangam maathirai</i> (Pills)	<i>Raththa pitham</i> (Hypertension), 21 <i>Paithiyam</i> (21 varieties of Delirium), <i>Thaagam</i> (Thrist) .
12	<i>Raththapithathirku kudineer</i> (Medicated Decoction)	<i>Sukku</i> (<i>Zingiber officinale</i>) <i>Musumusukai</i> (<i>Mukia maderaspatana</i>), <i>paal</i> (Cow's milk)	–	<i>Raththapitham</i> (Hypertension)

RELEVANT RESEARCH EVIDENCES SUPPORTING THE ANTI HYPERTENSIVE ACTION OF THOSE ZINGIBERACEAE HERBS

SL. NO	RELEVANT EVIDENCE
1	Angiotensin I-converting enzyme inhibitory proteins and peptides from the rhizomes of Zingiberaceae plants (M Yodjun et al 2012)
2	Effect of ginger and turmeric rhizomes on inflammatory cytokines levels and enzyme activities of cholinergic and purinergic systems in hypertensive rats (Ayodele Jacob Akinyemi et al 2016)
3	Phenolic compounds, antioxidant activity and in vitro inhibitory potential against key enzymes relevant for hyperglycemia and hypertension of commonly used medicinal plants, herbs and spices in Latin America (Lena Galvez Ranilla et al 2010)
4	Hypotensive and endothelium-independent vasorelaxant effects of methanolic extract from <i>Curcuma longa</i> L . in rats (Oluwatosin A Adramoye et al 2009)
5	Blood pressure lowering, fibrinolysis enhancing and antioxidant activities of Cardamom (<i>Elettaria cardamomum</i>) (Verma, S K et al 2009)

CONCLUSION

This work brings to limelight the importance of Siddha herbals of Zingiberaceae in treating *Raththapitham*. Recent relevant evidences also prove Antihypertensive action of these herbals .Further More work has to be done to find out the mechanism of action of these herbs and further research (experimental and clinical) are required to explore to isolate biologically active compounds of these Zingiberaceae herbals to treat *Raththa pitham* (Hypertension).

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