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A review on therapeutic effect of Rasakarpoora Kuligai - Siddha herbomineral formulation

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Abstract

Siddha system of medicine is based on Nature. Herbs, Minerals, Metals and Animal origins are commonly used to preventive and curative aspect of disease as in the form of medicine in Siddha system. Rasakarpoora Kuligai is one of the herbomineral formulations used to treat Puttru (Cancer)- Yoniputru, Linga putru, Kuzhipatta viranam (Chronic deep wound), Kuzhipatta kiranthi (Cavity formed Ulcer). This review is aimed to bring out scientific evidence behind the usage of Rasakarpoora kuligai. The ingredients of Rasa karpooora Kuligai have Antioxidant, Anti tumour, Anti carcinogenic, wound healing, Anti microbial and Anti fungal action. Rasakarpoora kuligai have potent antioxidant and cytotoxic activity against HeLa cell lines.

Keywords: Siddha Medicine, Rasakarpoora Kuligai, Pharmacological activities, Cancer.

Introduction

Rasakarpoora kuligai is Siddha herbo mineral formulation which is mentioned in Gunapadam Part II. The ingredients of Rasakarpoora Kuligai are Pooram (Mercuric chloride), Vetrilai (Piper betel), Milagu (*Piper nigrum*) and Poondu (*Allium sativum*). This drug useful to treat Puttru (Cancer) -Yoniputru, Linga putru, Kuzhipattaviranam (Chronic deep wound), Kuzhipatta kiranthi

(Cavity formed ulcer)⁽¹⁾. Pooram (Mercury chloride) have Tonic, Anti septic, Diuretic and Laxative. Vetrilai (Piper betel) contains Phenolic compound - chavical, alkaloids- Arakene, tanins⁽²⁾. Milagu (*Piper nigrum*) contains 5 Volatile alkaloids – Piperine, Piperidine, Chavicine, etc.⁽²⁾ Bulb of Garlic contains Sulphur contain compound Allicin, etc.⁽²⁾.

Phenol and Tannin in plants have antioxidant property. This review focused on the pharmacological activities of Rasakarpoora Kuligai and ingredients of each, which supports

the therapeutic usage of Rasakarpoora Kuligai. This literature review collected from the available Literature in the library of National Institute of Siddha and journals.

Ingredients of Rasakarpoora Kuligai⁽¹⁾

1. Pooram-Mercury chloride (Purified)



2. Vetrilai - Piper betel.



3. Milagu – *Piper nigrum*.



4. Poondu-*Allium sativum*



Rasakarpoora Kuligai



Review on siddha literature about ingredients of Rasakarpoora Kuligai^(1,3)

Botanical name/Chemical name	Family	Parts used	Taste	Potency	Division	Action
Pooram(Mercury chloride)	-	-	Salty	Hot		Tonic, Antiseptic Diuretic, Laxative.
Piper betel	Piperaceae	Leaf	Pungent	Hot	Pungent	Stimulant, Carminative Astringent, Aphrodisiac Antiseptic, Febrifuge Stomachic, Galactagogue Sialogogue.
<i>Piper nigrum</i>	Piperaceae	Seed, climber	Bitter, Pungent	Hot	Pungent	Acrid, Carminative Anti periodic, Rubefacient, Stimulant, Resolvent, Antivatha Antidote.
<i>Allium sativum</i>	Liliaceae	Rhizome	Pungent	Hot	Pungent	Carminative, Stomachic Tonic, Alternative Stimulant, Expectorant Diuretic, Antihelmintic

Review on *in vitro* study on ingredients of Rasakarpoora Kuligai⁽⁴⁻¹¹⁾.

Herbs/minerals	Pharmacological action	Parts	Experimental model
Piper betel	Anti oxidant activity ⁽⁴⁾	Aqueous extract of piper betel leave.	DPPH assay.
	Anti bacterial activity ⁽⁴⁾	Methanol extract of piper betel leaves.	Plate and broth MIC assay, and bio film assay.
	Anti ulcerogenic activity ⁽⁵⁾	Ethanollic extract of piper betel leaves .	SOD and CAT assay.
<i>Piper nigrum</i>	Anti oxidant activity ⁽⁶⁾	Ethanollic extract of <i>Piper nigrum</i> .	DPPH assay.
	Anti tumour activity ⁽⁷⁾	Piperine extract .	MTT assay - 4t1 murine breast cancer model
	Anticancer activity ⁽⁸⁾	Ethanollic extract of <i>Piper nigrum</i> .	Sulforhodamine –B assay- Colorectal carcinoma cell lines.
	Anti bacterial activity ⁽⁶⁾	Ethanollic extract of <i>Piper nigrum</i>	Agar diffusion method.
	Wound healing activity ⁽⁷⁾	Piperine extract <i>Piper nigrum</i>	Wound healing assay.

<i>Allium sativum</i>	Anti oxidant activity ⁽⁹⁾	Garlic extract	TBA- RS assay .
	Anti fungal activity ⁽¹⁰⁾	Garlic extract	Microbial assay in sabouraud's dextrose agar medium.
	Anti cancer activity ⁽¹¹⁾	Alcoholic extract of garlic.	MTT assay.
	Anti microbial activity ⁽¹²⁾	Garlic extract	Resazurin microfire plate assay technique.
	ROS dependant Cytotoxic effect ⁽¹³⁾	Aqueous extract of garlic.	SCC-15 cells

Review on *in vivo* study on ingredients of Rasakarpoora Kuligai⁽⁴⁻¹⁷⁾

Herbs	Pharmacological action	Parts	Experimental model
Piper betel	Anti tumour activity ⁽¹⁴⁾	Leaf extract of piper betel.	7,12 dimethyl benzene (o) antracene.(DMBA) treated wister rat.
	Anti carcinogenic activity ⁽¹⁴⁾	Leaf extract of piper betel.	Benzo pyrene induced tumour in mice.
<i>Piper nigrum</i>	Antitumour activity ⁽¹⁵⁾	Piperlartine, & piperine, two alkaloid amides from piper.	Sarcoma 180 tumours transplanted mice model
<i>Allium sataivum</i>	Anti oxidant activity ⁽¹⁶⁾	Garlic extract.	Skin tumour in 7,12 dimethyl bezanthracene induced skin carcinogenesis in mice.
	Anti tumour effect ⁽¹⁶⁾	Garlic extract.	7,12 dimethyl benz anthracene (DMBA) in swiss albino mice.
	Wound healing effects ⁽¹⁷⁾	Aqueous extract of garlic.	Indomethacin induced ulcer in wistar albino rats.

Review on *in vitro* study on Rasakarpoora Kuligai ⁽¹⁸⁾

Drug Name	Pharmacological action	Experiment model
Rasakarpoora kuligai	1. Anti oxidant ⁽¹⁸⁾	1.DPPH scavenging assay 2. Superoxide radical scavenging assay. 3. Nitric oxide radical scavenging assay. 4. Lipid per oxidation assay. 5. Hydroxyl radical scavenging assay. 6. H ₂ O ₂ radical scavenging assay Cell proliferation assay.
	2.Anti cancer activity against HeLa cell lines. ⁽¹⁸⁾ (Antiproliferative, Cytotoxic, Apoptotic, phase specific agent and it regulate intrinsic apoptotic pathway)	1. Cell proliferation assay. 2. Tryphan blue exclusion assay. 3. Ethidium bromide/Acridine orange assay. 4. Nuclear morphological assay. 5. Flow cytometry. 6. Gene expression (mRNA).

Conclusion

Through this literature Review Rasakarpoora Kuligai and the ingredients of Rasakarpoora Kuligai have antioxidant and anticancer, anti tumour, wound healing, antifungal and anti microbial activities which are scientifically support the therapeutic effect of Rasakarpoora Kuligai mentioned in Siddha Literature.

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