



Medicinal Plants in Rasayana Drugs, their Active Ingredients and Reported Biological Activities: an Overview

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Abstract

Rasayana Therapy is one of the important branches of Ayurveda Medicine stream, deals with preservation and promotion of health with youthness. Rasayana therapy is holistic one comprising of rejuvenation, anti-ageing, immuno modulatory, neuro protective and revitalizing the complete metabolism. The present article intends to brief about the various medicinal plants used in the Rasayana therapy, their active ingredients and the scientific studies carried out on them with reference to their biological activities. Even though the modern studies documented the biological properties of the individual plants or their extracts, the finding of suitable model system for understanding the core scientific concepts of Rasayana therapy on modern aspects is still not much explored.

Keywords: Rasayana Therapy; Medicinal Plants; Biological Activities; Active Compounds

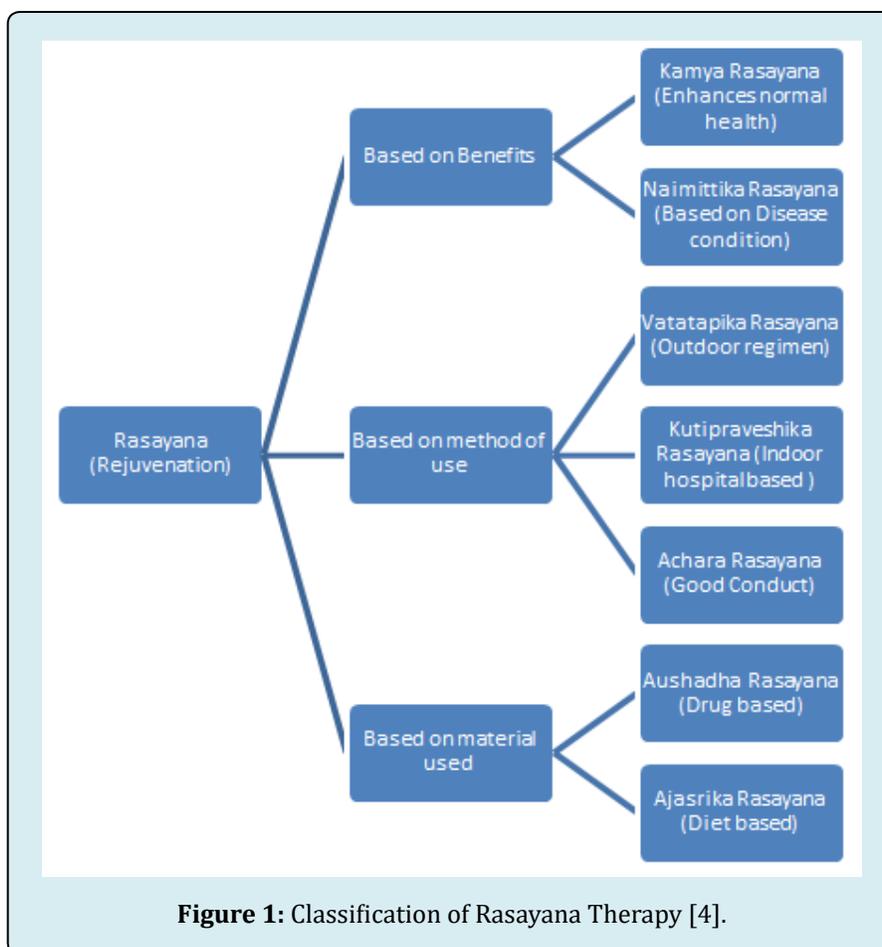
Introduction

Ayurveda is one of the major indigenous medicine systems of India that is followed thousands of years. The core concept of Ayurveda is not only curing the disease but keep the mankind in healthier way both in body and mind. Rasayana therapy is one of the eight major divisions of Ayurvedic science. 'Rasa' means essence of nutrition, 'ayana' means body tissues elements, and Rasayana therapy means the treatment methods that enrich the body tissue elements through nutrition in effective way [1,2]. According to Ayurveda the Rasayana therapy improves longevity, memory, intelligence, health, youth, complexion, voice, motor and

sensory strength [3]. Rasayana drugs possess multifaceted action on the human physiology and pacify all afflictions. The present study documents the major medicinal plants that are used in the Rasayana Drugs, their active compounds and their biological activities.

Classification

Rasayana are classified in Ayurveda on the basis of benefit, method of use and type of materials used, and all these things are interconnected and the holistic approach is adopted during the course of treatment [4] (Figure 1).



Medicinal Plants used in Rasayana Therapy

The usage of single plants and formulations has been well reported in the Rasayana therapy [5,6]. The doses, dose schedule, combination of the drugs are determined based

on the patho physiological conditions of the subject and the environmental condition. The list of medicinal plants commonly used in Rasayana therapy with the details of its purposes has been documented in Tables 1 & 2.

S.No.	Common Sanskrit name of plants	Scientific name
1	Ashwagandha	Withania somnifera
2	Amalaki	Emblica officinalis
3	Bibhitaka	Terminalia bellirica
4	Haritaki	Terminalia chebula
5	Brahmi	Bacopa monnieri
6	Bala	Sida cordifolia
7	Bhringraja	Eclipta alba
8	Jyothishmati	Celastrs paniculatus
9	Pippali	Piper longum
10	Atmagupta	Mucuna prurita
11	Shatavari	Asparagus racemosus

12	Kashmari	Gmelina arborea
13	Guduchi	Tinospora cordifolia
14	Chitraka	Plumbago zeylanica
15	Vidanga	Embilica ribes
16	Guggulu	Commiphora wightii
17	Haridra	Curcuma longa
18	Rasona	Allium sativum
19	Manjishta	Rubia cordifolia
20	Tuvaraka	Hydnocarpus laurifolia
21	Sankhapuspi	Convolvulus pluricaulis

Table 1: Commonly used Medicinal Plants in Rasayana Therapy.

There are various studies that have been carried out on these plants for evaluating their biological activities and

identifying their active ingredients. The details have been presented in the Table 2 [7].

Herbs	Reported biological activities	Active compounds
<i>Withania somnifera</i>	Immuno modulator, strength promoting, adaptogenic	Withaferine A, Withanocytes I-VII
<i>Embilica officianlis</i>	Jaundice, bleeding disorders, gastritis, anti-diabetic	Ascorbic acid, gallic acid, chebulinic acid, chebulagic acid
<i>Terminalia bellerica</i>	Purgative, bronchitis, anti HIV, anti-malarial, anti-fungal	Tannin, gallic acid, ellagic acid, chebulagic acid
<i>Terminalia chebula</i>	Purgative	Tannin
<i>Bacopa monnieri</i>	Anti laprotic, antipyretic, anti-diabetic, anti-inflammatory, anxiolytic, memory enhancer	Bacoside A
<i>Sida cordifolia</i>	Filariasis and bleeding piles	Ephedrine, Sitoindoside X, Vasicine Vasicinone
<i>Eclipta alba/Eclipta prostrata</i>	Hepatoprotective, dermatosis and dyspnoea	Wedelolactone, dimethylwedelolactone
<i>Celatrus paniculatus</i>	Memory enhancing, Skin affections	Linoleic, linolenic and palmitic acids
<i>Piper longum</i>	Bioavailability enhancer, Anti-bacterial, antifungal, anti helmenthic activities	Alkaloids piperine, piperilongumine (piplartine) piperlonguminine, methyl -3,4,5-trimethoxycinnamate
<i>Mucuna prurita/Mucuna pruriens</i>	Anti Parkinsonian and aphrodisiac	L- 3,4 dihydroxy phenylalanine (L-dopa)
<i>Asparagus recemosa</i>	Duodenal ulcer, immuno modulatory effects	Steroidal glycosides shatavarine I- IV, Polycyclic alkaloid 9,10-dihydrophenanthrene derivate racemosol
<i>Gmelina arborea</i>	Haemorrhagic disorders, cardiac diseases, disurea	Linoleic acid
<i>Tinospora cordifolia</i>	Immuno modulatory, hepato protective	Sesquiterpene tinocordifolin, sesquiterpene glucoside, tinocordifolioside, arabino galactane
<i>Plumbago zeylanica</i>	In colic and appetizer	Plumbagine, 3- chloroplumbagine, 3,3-biplumbagine
<i>Embilica ribes</i>	Contraceptive and anthelminthic	Embilin

<i>Commiphora wightii</i>	Anti-inflammatory, anti hyperlipidemic, cervical adenitis	Resin, gum, volatile oil consist of myrcene, dimyrcene, poly myrcene, Resin- Z gulggulsterone, E-guggulsterone, Z- guggulsterol, guggulsterol 1-V
<i>Curcuma longa</i>	Anti-inflammatory, antipluritis antidiabetic, anti dermetosis, antihelmenthic, wound healing	Curcumin (curcumin 1)
<i>Allium sativum</i>	Hypocholesterolaemic	Allyl alcohol, sulphur compounds like Allicine, Allin diallyl sulphide
<i>Rubia cordifolia</i>	Anti tumor, blood dysentery	Rubiadin (1, 3-dihydroxy-2-methyl anthraquinone) Alizarin, Purpurin
<i>Hygrocarpus laurifolia</i>	Skin disorders, itching, non-healing wound, sinuses and abscess.	Hypnocarpic acid, Chalmoorgic acid, oleic acid and palmitic acid
<i>Convolvulus pluricaulis</i>	Reduce gastric ulcers, stress, control neurotoxic, levels, improves memory, analgesic property, cure hyperthyroid	Convolute, convolidine, convolvine, confoline, convosine, palmitic acid, linoleic acid β sitosterol, tropane

Table 2: Medicinal Plants used in Rasayana Therapy and the details of Reported Biological Activities and Active Compounds.

Discussion

Rasayana therapy is one of the important treatment protocols of the Ayurveda and practiced by the experienced and exponent Ayurvedic physicians. In Rasayana therapy the plants are used as medicine in various forms as single drug or formulations while giving equal importance to the diet and life style. Even though, the effects of Rasayana Therapy on human subjects have been documented by the various researchers, the modes of action of Rasayana Therapy have not been scientifically explored much. The modern research has only documented the biological activity of the individual medicinal plants and their active ingredients [8,9]. Based on these, the Rasayana therapy is interpreted in modern science like Immuno-modulatory action, Anti-ageing action, Adaptogenic action, Longevity or extended life span etc [10]. However, the research on finding of some suitable model systems is still a major challenge in the understanding of mode of action of Rasayana therapy.

Conclusion

Rasayana Therapy is one of the eight branches of Ayurvedic Science, which comprises of preventive, promotive and curative aspects for healthy and happy living with youthness. The benefits of Rasayana therapy are long life with youthness, enhanced memory and brilliance, great strength of body and sense organs and pleasing personality. Various plants and plant products are used in the Rasayana treatment along with prescribed diet and life style. Even though the active components of the plants and their biological activities have been documented individually, the holistic mechanisms of action of Rasayana treatment are still not explored in depth.

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