ROLE OF RASAYANA IN MANAGEMENT OF AGEING: A REVIEW
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ABSTRACT
Persistent and excessive stress of modern life has made us recognize with new class of disease called stress-related diseases. In Ayurveda, rasayanas have been mentioned as a set of rejuvenating measures aimed towards youthful rich life free of diseases. It promotes longevity via optimizing cellular level nourishment (Swasthasya orjaskaram). The term rasayana means transportation of nutritional essence throughout body. Various activities such as antioxidant, immuno-competent, immune-potent, immunomodulator, adaptogen, rejuvenator, anti-stress agent, tissue protector, tissue proliferator etc. are proved rasayana properties. Acharya Shringadhara has clearly stated rasayana as dravyas having ability to prevent early ageing as well as various opportunistic diseases and Hareetaki (Terminalia chebula), Guduchi (Tinospora cardifolia), Guggulu (Commifora mukul) and Rudanti (Capparis moonii) as four rasayana dravyas. According to some research studies free radical scavenging activity of methanolic extract and immunomodulator activity of aqueous extract of Guduchi (Tinospora cardifolia) proves its Rasayana property. Hareetaki (Terminalia chebula) and Guggulu (Commifora mukul) are proved antioxidant as well as cytoprotector. Extracts of Rudanti (Capparis moonii) stimulate lysozymal activity and thus act as immunomodulator. These all are capable of maintaining immune system from immune deficiency state to normal functional state. The present review is undertaken for screening these four herbs to evaluate their probable mode of action as anti-ageing agents helpful in graceful ageing.

Keywords: Rasayana, Immunity, Guduchi, Hareetaki, Rudanti, Guggulu.

INTRODUCTION
Rasayana is a unique branch of Ayurveda that promotes the inner healing power of an individual via promoting the immunity. It forms a very important division of Ayurveda which clearly has an important role in wholesome development of a person and also as a resource of preventive medicine. Rasayana is made up of two terms ‘Rasa’ and ‘Ayana’ which refers to transportation of nutritional essence of food throughout the body. Acharya Charak gave prime position to it in Chikitsa sthan and explained it as “Swasthasya orjaskaram” 1. According to Acharya Sushruta rasayana acts as a measure to maintain longevity, enhance intelligence and mental health and also increase immunity against various diseases 2.

Number of herbs has been described having rasayana properties. Acharya Charak has mentioned Guduchi, Sankhpushpi, Mulethi and Mandukparni as chaturvidh rasayana, whereas in Paribhasha prakaran Acharya Shringadhara stated Guduchi (Tinospora cardifolia), Guggulu (Commifora mukul), Hareetaki (Terminalia chebula) and Rudanti (Capparis moonii) as 04 prime rasayana dravyas 3.

Pharmaco-therapeutic actions of rasayanas
According to Charaka the rasayana procedures/drugs cause the following effects in human body.

Table 1: The list of actions attributed to Rasayana drugs and their translated terms 4

<table>
<thead>
<tr>
<th>Name</th>
<th>Synonyms suggesting rasayana properties</th>
<th>Rasa panchaka</th>
</tr>
</thead>
</table>
| Guduchi (Tinospora cardifolia) | Jivanti, Rasayani, Vayasyita9          | R- Tikta, Kashaya  
G- Laghu  
V- Ushna  
W- Madhura |
| Hareetaki (Terminalia chebula)  | Ayushya, Rasayani7, Jivanti, Jivaniikaa, Vaya sthapavan param1  | R- Panch rasa without lavana  
G- Laghu, ruksha  
V- Ushna  
W- Madhura |
| Rudanti (Capparis moonii)     | Rasayani, Shoshaghnir, Jara vinshanan9  | R- kashaya, Tikta  
G- laghu, Ruksha  
V- ushna  
W- katu |
| Guggulu (Commifora mukul)    | Rasayana, Arogyakaro paro78            | R- Katu, tikta, kashaya  
G- Laghu, sara  
V- Ushna  
W- Katu |

Table 2: Pharmacological properties

<table>
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DISCUSSION

Acharya Sharangdhar stated four examples of rasayanas. To authenticate their position under rasayana dravyas various researches have been conducted to herbs showing rasayana properties to find out the accurate efficacy of them. Sophisticated tools and techniques used in recent era proved the following types of drug actions of rasayanas- Adaptogen, Antioxidant, Bone marrow proliferation, Immunocompetent, Immuno-modulators, Immuno-potentiating, Immuno-stimulant, Mental agility, Nephro-protection, Tissue protection, stress reliever etc. 11.

Guduchi (Tinospora cordifolia) as rasayana

According to recent studies it is proved that Guduchi (Tinospora cordifolia) promotes strength and vitality (Soma). Methanolic extract of stem of T. cordifolia has been reported to increases the erythrocytes membrane lipid peroxide and catalase activity and thus shows anti-oxidant activity 12. It also decreases the activity of SOD, GPlx in alloxan induced diabetic rats. Extract of Tinospora cordifolia shows free radical scavenging properties 12. A large variety of compounds which are responsible for immunomodulatory and cytoxic effects are 11-hydroxymsukatone, N-methyl-2pyrrolidione, N-formylaammoin, cordifoliode A, magnoflorine, tinocordioside and syringin. These natural compounds improve the phagocytic activity of macrophages and enhance nitric acid production by stimulation of splenocyte 13. In an in vitro study on immunocompetent cells, it was demonstrated that aqueous extracts of the stems of Guduchi (Tinospora cordifolia) protect mice against experimental infections via enhancing T as well as B cell responses 14.

Rudanti (Capparis moonii) as rasayana

A recent research work has revealed in their in-vitro study that ethanolic and aqueous extract of Rudanti (Capparis moonii) have immuno-stimulating properties. Both the extracts showed phagocytic stimulation of lysosomal enzyme, myeloperoxidase activity and nitric oxide in peritoneal mouse macrophages 15.

Hareetaki (Terminalia chebula) as rasayana

Recent studies have revealed that it shows antioxidant, free radical scavenging activity. According to a study due to presence of phenolics, the leaves, bark and fruit of Hareetaki (Terminalia chebula) show high antioxidant activity. Its aqueous extract exhibits xanthine oxidase inhibition, 2, 2-diphenyl-1-picrylhydryl (DPPH) radicals scavenging activity while it’s methanolic extract found to inhibit lipid peroxide formation and to scavange hydroxyl and superoxide radicals in vitro. In an in-vitro study its ethanol extract inhibited oxidative stress and the age-dependent shortening of the telomeric DNA length which is probably responsible for the development of duodenal ulcers. The fruit is also documented to showing inhibitory effect on cellular aging as well as anti-carcinogenic and chemopreventive activity 16.

Guggulu (Commifora mukul) as rasayana

Guggulu (Commifora mukul) is known to have promising multi-purpose medicinal properties. Guggulu (Commifora mukul) extract shows anti-oxidant properties possibly by mediating protection against myocardial necrosis 17. Guggulu shows anti-oxidant effect due to presence of active constituent Guggulsterone, which inhibits generation of oxygen free-radicals.

CONCLUSION

Rasayana therapy have very important role in Ayurveda. Rasayana dravyas influence various aspects of body such as Dhatu, agni, shrotas and Ojas. Various research works have been conducted to explore Rasayana properties of plants. Acharya Sharangdhar mentioned four plants as example of Rasayana. Current research article is made to compile Rasayana properties of these four Rasayanas based on research works. Recent researches have proved their Rasayana properties. Augmented by recent research works it is proved that Rasayana therapy is a wholesome therapy that is used to treat diseased persons as well as to maintain health of individuals. Rasayana is a unique branch of Ayurveda. It promotes the inner healing power of an individual and helps by over taking the pain and disease while promoting the immunity.

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