



SCOPE OF RASAYANA THERAPY IN GERIATRIC HEALTH CARE – A REVIEW ARTICLE

Geriatric Health

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ABSTRACT

According to World Health Statistics 2011, 83 million persons in India are 60 years of age and older, representing over 7% of the nation's total population. Geriatrics is relatively new in India but Ayurveda in its eight branches dedicated one separate branch for geriatric care in the name of *Jara* or *Rasayana* which mainly deals with enhancing one's immunity and curing the general debility and diseases. Elderly person have various health and socio-economic challenges which ultimately affect their psychological health and even needs emergency care at times. Hence to struggle with these issues the need for geriatric care has become important. In recent years *Rasayana* therapy has been proved as a remarkable milestone in geriatric care. The present study aimed to explore the concept of geriatric healthcare through *Rasayana* principle described in Ayurveda. The above need-based information is collected from various Ayurvedic literatures (Laghutrayee, Bruhatrayayi) along with numerous research articles from databases, such as PubMed, Google Scholar and also electronic searching of conference proceedings, brochures, government policy documents, press releases etc. All collected data were depicted in narrative form and tabular manner under different heads. Considering the above aspect regarding geriatric healthcare, the role of *Rasayana* may be proved beneficial in Geriatric health care. Further, adoption of code of conduct may efficiently overcome the early ageing conditions by maintaining good immunity for improving disease resistance.

KEYWORDS

Rasayana, Geriatrics, Immuno-modulation

1. INTRODUCTION

Geriatrics is the branch of medicine that deals with health promotion, prevention, diagnosis and treatment of disease and disability in elderly people. According to World Health Statistics 2011, 83 million persons in India are 60 years of age and older, representing over 7% of the nation's total population. [1] The elderly population accounted for 7.4% of the total population in 2001, 8.6% in 2011 and has been projected to increase to 19% by the year 2050 in India. [2] Therefore, relatively young India today will turn into a rapidly progressing aging society in near future. Despite an aging population, geriatrics is relatively new in India. Establishment of a separate academic Geriatric department in AIIMS led in January 2012. The first batch of MD students was admitted in January 2012 and the Geriatric Medicine Ward opened in July 2012. Government of India has approved establishment of two National Centers of Ageing-one each at All India Institute of Medical Sciences (AIIMS), New Delhi, and Madras Medical College, Chennai under the tertiary level component of National Programme for Health Care of the Elderly (NPHCE) during the 12th Five Year Plan Period. [3] However, geriatric is one of the eight branches of the traditional Indian system of medicine i.e. Ayurveda which is described as *Jara* or *Rasayana*. *Rasayana* is the branch which describes the methods of withholding ageing, increasing life-span, intelligence, strength and capacity to get rid of diseases. [4] According to Acharya Charaka, *Rasayana* is possessed of inconceivable possibilities being promotive of longevity and health, preservative of youth, dispersive of somnolence, torpor, fatigue, exhaustion, indolence and weakness, restorative of the balance of tridosha, stabilizing, curative of flabbiness of the flesh, stimulative of the internal gastric fire and promotive of luster, complexion and voice. [5] Thus, the *Rasayana* therapy of Ayurveda primarily deals with enhancing one's immunity and curing the general debility and diseases. Those who use *Rasayana* in prescribed manner not merely attain longevity but live transcending old age, infirmity and disease.

2. Review methods

The information regarding the above need base study was collected from various Ayurvedic literature (Brihatrayayi, Laghutrayayi) and research articles. Databases were searched using keywords '*Rasayana*, Geriatrics and Ayurveda' from search engines Google Scholar, PubMed and DHARA with 'AND' as a Boolean operator. Search without applying filters yielded 721 articles. Search was narrowed down by applying filters free full text, clinical trial, systematic review and 68 articles obtained. After screening 68 articles, 21 articles selected for data collection. The findings are also derived from published health data, secondary research, and electronic search of

conference proceedings, brochures, government policy documents, press releases etc. All collected information is described under the heads in narrative and tabular form.

3. Need of Geriatric Care

There are major two geriatric problems in India; first is 'health problems' and another is 'socio-economic challenges' which ultimately affects psychological health. Elderly or geriatric populations have different socio-economic problems in their life in the forms of loss of spouse, economic insecurity, social isolation, not getting pension timely etc. due to which they are not sufficient sometimes to fulfill their basic needs. It is estimated that one out of two elderly in India suffers from at least one chronic disease like diabetes mellitus, dyslipidemia, hypertension, COPD, thyroid disorders, heart diseases which requires life-long medication. This is further complicated by impairment of special sensory functions like vision and hearing and locomotor disabilities. A decline in immunity as well as age-related physiologic changes leads to an increased burden of communicable diseases or infectious diseases [6] (chart 1&2). Also, the percentage of people without morbidity consistently declined with age [7] (chart 3). Population aging is an inevitable and irreversible process due to improvements in health and medical care. Even for people who had always been healthy and stayed in shape, longer lifespan inevitably bring the need for more care as their bodies' age. Acute episodes of illness happen more frequently whereas chronic conditions take more attention or medications to manage and also minute conditions can most of the times lead to emergency situation. Hence to struggle with these issues the need for geriatric care has become important.

3.1. Time to seek Geriatric Care

There is not a specific age or sign and symptoms when one should start thinking of seeking geriatric care; however, when self-dependency becomes an issue and when person starts feeling handicapped mentally or physically, then it is the time to seek geriatric care.

However, the classical Ayurveda *Rasayana* therapy is advisable even in younger age to prevent disease manifestation in later age and to slow down degeneration process which includes cleansing and rejuvenation protocol called *panchakarma* followed by administration of immunomodulatory herbo-mineral or herbal preparation depending on the condition of the individual.

4. Implementation of Rasayana

There are three types of *Rasayana* described in ayurvedic text i.e. *Ajasrika*, *Kamyā* and *Naimittika*. According to Ayurveda health or

disease manifestation depends mainly upon the Agni (digestion and metabolism mechanics) which in turn depends on quality and quantity of food, along with food habits, lifestyle, psychological status, and effect of environmental conditions. Considering this fact, Acharya explained the concept of *Ajasrika Rasayana* (*Rasayana* in the form of food) which promotes intake of nutritious healthy food appropriate to individual. Milk, ghee (clarified butter), honey etc. are few examples of such *Ajasrika Rasayana*, and this can be practiced in judicious manner in healthy individuals for long term healthy late life. *Kamya rasayana* is used to fulfill special desire. It is of four types: *Prana Kamya* which is used for achieving or maintaining the best quality of *prana* (energy) in the body (e.g. *Ashwagandha*). *Medha Kamya* is used for enhancing the memory and intellect (e.g. *Shankhapushpi*). *Ayush Kamya* is used for increasing longevity (e.g. *Chyawanprashavaleha*). *Chakshu Kamya* is used for maintaining healthy eyes (e.g. *Triphala Ghrita*). *Naimittika Rasayana* principle of Ayurveda focuses on '*Apunarbhava Chikitsa*' i.e. avoiding the recurrence of the symptoms after treating the diseases by its principles and also cures complication of the disease. The tissue-specific *Rasayana* drugs can be administered along with the treatment of the underlying disease to enhance the tissue strength and disease combating power so that faster and better relief may be provided and recurrences may be prevented. *Pippali Rasayana* or *Chyawanprasha* in Post COVID syndrome, *Guduchi* or *Amalaki Rasayana* after curing or as adjuvant to skin disease treatment are the examples of *Naimittika Rasayana*. This can also be implemented in elderly to avoid lingering effects of the disease or to avoid complications. In a study conducted by Vyas et al., *Rasayana Avaleha* has proved to be an effective adjuvant therapy in protecting patients from the adverse effects of chemotherapy and radiotherapy; also improves the quality of life of the patient and may enhance the life expectancy. [8] This is estimable example of *Naimittika Rasayana*.

Recent studies on *Rasayana* therapy have revealed that *Rasayana* drugs have anti-inflammatory, anti-cancer, anti-oxidant, and immunomodulation effects. *Rasayana* therapy promotes mental well-being and quality of life. [9] In Indian traditional Ayurvedic system, use of *Vayasthapana Rasayana* is in regular practice for mainly combating age-related disorders and diseases as many of the components of the *Rasayana* are known for their free-radical scavenging activity. The contents of *Vayasthapana Rasayana* are *Amalaki*, *Haritaki*, *Guduchi*, *Gokarna*, *Mandookparni*, *Punarnava* and *Shatavari*. Also a study affirms the in vitro antioxidant potential of crude methanolic extract of the standard Ayurvedic formulation-*Vayasthapana Rasayana*, with results comparable or significantly higher to those of the standard compounds such as ascorbic acid and Trolox. [10] There are ample evidences of *Rasayana* herbs help in improving immunogenicity and work as potential immunomodulators. These herbs have shown their potential to modulate immune targets such as dendritic, Th1/Th2 and NK cells. In addition, they also have preferential effects on Th1/Th2 immunity, which is one of emerging targets for adjuvant discovery. [11] According to scientific data collected by Singh et. al. 2011, a very popular *Rasayana* drug *Ashwagandha* is a real potent regenerative tonic, due to its multiple pharmacological actions like anti-stress, neuroprotective, antitumor, anti-arthritis, analgesic and anti-inflammatory etc. In experimental models it increases the stamina of rats during swimming endurance test and prevented adrenal gland changes of ascorbic acid and cortisol content produce by swimming stress. Pretreatment with *Ashwagandha* showed significance protection against stress induced gastric ulcers. *Ashwagandha* have anti-tumor effect on Chinese Hamster Ovary (CHO) cell carcinoma. It was also found effective against urethane induced lung-adenoma in mice. In some cases of uterine fibroids, dermatosarcoma, long term treatment with *Ashwagandha* controlled the condition. It has a Cognition Promoting Effect and was useful in children with memory deficit and in old age people loss of memory. It was also found useful in neurodegenerative diseases such as Parkinson's, Huntington's and Alzheimer's diseases. It has GABA mimetic effect and was shown to promote formation of dendrites. It has anxiolytic effect and improves energy levels and mitochondrial health. It is an anti-inflammatory and anti-arthritis agent and was found useful in clinical cases of Rheumatoid and Osteoarthritis. [12] Therefore *Ashwagandha* is very useful drug for prevention of elderly complications and for maintaining energetic overdue adulthood. Experimental studies have established oral adjuvant activity of *Ashwagandha Rasayana* along with DPT vaccine. Results indicate that the treated animals did show significant increase in antibody titers as compared to untreated animals. This implies that *Rasayana* herbs can be used in conjunction with vaccines and have the potential to be used as an adjuvant. [13] *Chyawanprash* is also a popular health

supplement traditionally used for rejuvenation, and displays cytoprotective and genoprotective effects. [14] *Triphala Rasayana* has shown a great ability to prevent and reverse radiation-induced DNA damage in various in vitro and animal models. [15]

Cognitive decline is the most common and disabling condition among the elderly that affects the quality of life and general wellbeing of the elderly. Cognitive impairment is a common progressive degeneration problem among the elderly contributing to significant disability. It affects the individual's quality of life and makes them dependent on others for their routine activities. Conventional medicine has little role in improving cognitive impairment and preventing disability. Evidence showed that some of the *medhyarasayans* such as *Ashwagandha*, *brahmi*, *mandukaparni*, *Sankhapushpi* etc. helps to improve various neurocognitive abilities among elderly persons. [16] A study by Chobe S. et al.2020 assessed that Ayurveda *rasayana* (*Bhrami Ghrita*) has cognitive benefiting effects on various cognitive measures such as executive functions, auditory-verbal learning, attention, concentration, cognitive flexibility, verbal fluency, processing speed, and memory. [17] *Medhya rasayana* may have effect on cerebral circulation and may enhance oxygen consumption and glucose utilization by the brain cells. Potentially it may be useful in cases of degenerative brain disorder. [18] Another study on *Medhya Rasayana* reveals significant improvement on short memory impairment as well as long memory impairment in Senile Memory Impairment. Reduction of AChE showed enhancement of memory functions due to improvement of cholinergic actions in the human brain with memory enhancing, antidepressant, anti-stress, and anxiolytic potential. [19] Finding of the study done by Tiwari et al. 2017 is that intervention with the *Amalaki Rasayana* improved memory and neurometabolic activity in A β PP-PS1 mice nearly comparable to that of donepezil treated A β PP-PS1 mice, suggesting that *Amalaki Rasayana* has a good potential to improve cognitive functions in Alzheimer's disease. [20] Another study on dietary *Amalaki Rasayana* supplement in flies-*Drosophila melanogaster* by Dwivedi et al.2016 suggests that it may prevent several diseases and aging conditions by improving tolerance to a variety of cell stresses through reduced ROS and lipid peroxidation on the one hand, and enhanced SOD activity and Hsp27 on the other. The resulting better homeostasis improves life span and quality of life and thus contributes to 'healthy aging'. [21] Similarly, *Guduchi* also enhances the life span of *D. melanogaster* in both parent and F-1 generation suggesting that the *Rasayana* effect of *Guduchi* even prevails to next generation. [22] Here, a discussion is done on almost diseases which elderly Indians are facing at their later age. Thus the implementation of appropriate *Rasayana* at appropriate time will definitely useful for living healthier and happier old age.

Table 1: Rasayana drugs/remedies according to leading health problems in elderly

Degenerative disorders	<i>Ashwagandha</i> , <i>Guduchi</i> , <i>Shatavari</i> , <i>Yashtimadhu</i> , <i>Nagbala</i> , <i>Amalaki Rasayana</i> , <i>Brahmi Rasayana</i> , <i>Chyawanprasha</i> etc.
Respiratory diseases	<i>Pippali Rasayana</i> , <i>Chyawanprasha</i> , <i>Vasavaleha</i> , <i>Agastyaharitaki</i> etc.
Locomotor diseases	<i>Ashwagandha</i> , <i>Guduchi</i> , <i>Laksha</i> , <i>Shankha</i> , <i>Shukti</i>
Vision and hearing problems	<i>Triphala</i> , <i>Sariva</i>
Autoimmune diseases and Cancer	<i>Haridra</i> , <i>Ashwagandha</i> , <i>Guduchi</i>
Lifestyle disorders like DM, HTN, dyslipidaemia etc.	<i>Haridra</i> , <i>Guduchi</i> , <i>Patha</i> , <i>Punarnava</i> , <i>Shilajatu</i>
Psychological and Cognitive Problems	<i>Medhya Rasayana</i> , <i>Brahmi</i> , <i>Shankhapushpi</i>
Metabolic or digestive disorders	<i>Yashtimadhu</i> , <i>Guduchi</i> , <i>Shatavari</i> , <i>Haritaki</i> , <i>Bhumyamalaki</i>

4.1. Achara Rasayana: An effective tool for prevention and prophylaxis

Being a holistic science with equal focus on the body, mind, and soul, Ayurveda also describes a type of *Rasayana* for psychological and spiritual health. Called as "*Acharya rasayana*", "*Acharya*" literally means "discipline".

Acharya Rasayana is one of the comprehensive disciplines of Ayurveda, which comprises a specialized use of herbs, herbomineral

formulations, food articles, and lifestyle along with self-discipline with social etiquette to achieve the optimum state of tissues and systems of the body so that there is the least effect of etiological factors on the body. In other words, it can be stated that *Rasayana* is a way to achieve homeostasis and thus retarding the process of aging phenomenon and prevention of diseases.

4.2. Scope of *Rasayana* in Geriatrics concerning Ayurveda

Ministry of Health and Family Welfare (MOHFW) has implanted the National Programme for Health Care of Elderly (NPHCE). The Vision of the NPHCE are: (1) Provision of accessible, affordable, and high quality long-term, comprehensive and dedicated care services to elderly population (2) Creation of a new “architecture” for Aging (3) Building a framework for creation of an comfortable environment for “a Society for all Ages;” (4) Promotion of the concept of Active and Healthy Aging. NPHCE is expected to provide preventive, promotional, curative and rehabilitative services in an integrated manner for the elderly in various Government health facilities. Ayurveda physicians have prominent scope in all the four motives of NPHCE with ample and judicious use of *Rasayana* as every system of medicine emphasizes on treating the disease but in Ayurveda, treating a disease is always secondary rather, maintaining and preserving health which is the first objective of health-care plans.

Chart 1: Number of persons aged 60 years and above reporting a chronic disease (per 1000 persons)

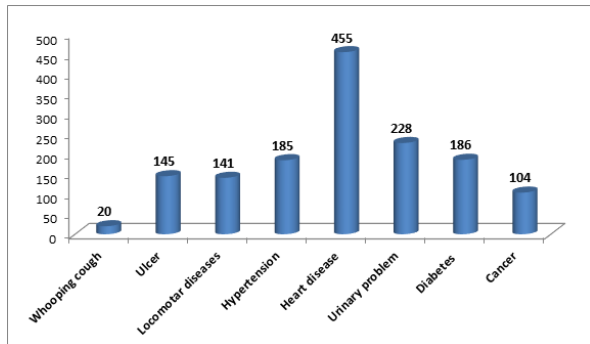


Chart 2: Number of disabled per 100,000 elderly persons for different types of disability

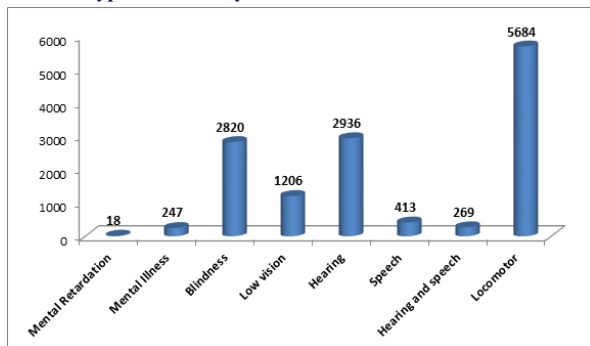
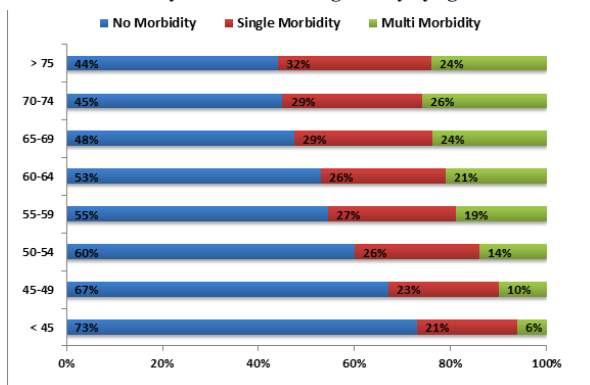


Chart 3: Morbidity conditions among elderly by age



5. CONCLUSION

Ageing is a complex multi-factorial and inevitable process. The

proportion of elderly people is continuously increasing with age related disabilities or diseases which could be delayed or treated to make the elderly healthier and happier. Ayurveda (Indian traditional system of medicine) has a comprehensive aspect of immunity through *Rasayana* which is a rejuvenation therapy. *Rasayana Tantra* is an important branch of eightfold Ayurveda. This particular branch concentrates on the prevention of disease process rather than cure. The specific actions of *Rasayana* drugs are nutrient supplementation, metabolic enhancement and tissue nourishment. *Rasayana* drugs may be advisable as food supplement as well as medicine to minimize the ageing and related disorders. Keeping in mind the phenomenon of three types of *Rasayana* i.e. *Ajasrika*, *Kamy* and *Naimittika*; an integrated approach should be adopted in prevention, management and to avoid lingering or recurrence of disease or complications. Here an attempt has made to generate the potential leads based on the classical text and available literature from Ayurveda textbooks and scientific journals to develop broad vision towards importance and implementation of *Rasayana* therapy in geriatric health care.

REFERENCES:

1. WHO: World health statistics 2011. [http://www.who.int/whosis/whostat/2011]
2. Elderly in India-Profile and Programmes 2016. New Delhi: Ministry of Statistics and Programme Implementation. Government of India. 2016
3. Press Information Bureau, Government of India, Ministry of Health and Family Welfare, 19-January-2016 17:35 IST
4. Sushruta, Sushrutasmhita. Edited with Sushrutavimarshini Hindi Commentary by Dr. Anant Ram Sharma, Sutrasthana, Vedotpatti Adhyaya, 1/7(7), Reprint Edition, Chaukhamba Surabharaati Prakashan, Varanasi, 2009, Pg no. 7
5. Charaka, Charakasamhita, Edited with "Vaidyamanorama" Hindi commentary by Acharya Vidyadhara Shukla and Prof. Ravi Dutt Tripathi, Chikitsasthana, Rasayanadhyaaya, Pranakamiya 1/2/3, Reprint edition 2009, Chaukhamba Sanskrit Pratisthana, Delhi, Pg. no. 17
6. Page no. 44-45, Situation Analysis of the Elderly in India, 2011, Central Statistics Office, Ministry of Statistics & Program Implementation, Government of India
7. Down to earth, Almost 70% senior citizens in India have a chronic illness, by Nand Lal Mishra, Gursimran Singh Rana, Devikrishna NB; Published: Thursday 07 January 2021
8. Vyas, Purvi, A. B. Thakar, M. S. Baghel, Arvind Sisodia, and Yogesh Deole. "Efficacy of Rasayana Avaleha as adjuvant to radiotherapy and chemotherapy in reducing adverse effects." Ayu 31, no. 4 (2010): 417.
9. Peterson CT, Lucas J, John-Williams LS, Thompson JW, Moseley MA, Patel S, et al. Identification of altered metabolomic profiles following a Panchakarmabased Ayurvedic intervention in healthy subjects: the Self-Directed Biological Transformation Initiative (SBTI). Sci Rep 2016 Sep 9;6:32609.
10. Mukherjee, Sourav, Nayana Pawar, Omkar Kulkarni, Bhagyashri Nagarkar, Shrikant Thopte, Akshay Bhujbal, and Pankaj Pawar. "Evaluation of free-radical quenching properties of standard Ayurvedic formulation Vayasthapana Rasayana." BMC complementary and alternative medicine 11, no. 1 (2011): 1-6.
11. Singh, Rajeshwari, Sumeet Goel, Pascale Bourgeade, Lotfi Aleya, and Devesh Tewari. "Ayurveda Rasayana as antivirals and immunomodulators: potential applications in COVID-19." Environmental Science and Pollution Research (2021): 1-27.
12. Singh, Narendra, Mohit Bhalla, Prashanti de Jager, and Marilena Gilca. "An overview on ashwagandha: a Rasayana (rejuvenator) of Ayurveda." African Journal of Traditional, Complementary and Alternative Medicines 8, no. 5S (2011).
13. Gautam, M., S. S. Diwanay, S. Gairola, Y. S. Shinde, S. S. Jadhav, and B. K. Patwardhan. "Immune response modulation to DPT vaccine by aqueous extract of Withania somnifera in experimental system." International immunopharmacology 4, no. 6 (2004): 841-849.
14. Sharma, R.; Martins, N.; Kuca, K.; Chaudhary, A.; Kabra, A.; Rao, M.M.; Prajapati, P.K. Chyawanprash A Traditional Indian Bioactive Health Supplement. Biomolecules 2019, 9, 161. [CrossRef] [PubMed]
15. Peterson, C.T.; Denniston, K.; Chopra, D. Therapeutic uses of Triphala in Ayurvedic medicine. J. Altern. Complement. Med. 2017, 23, 607-614. [CrossRef] [PubMed]
16. Singh RH, Narsimhamurthy K, Singh G. Neurotrophic impact of Ayurvedic Rasayana therapy in brain aging. Biogerontology 2008 Dec 1;9(6):369-74.
17. Chobe, Shivaji, Sanjib Kumar Patra, Meenakshi Chobe, and Kashinath Metri. "Effect of integrated Yoga and Ayurveda Rasayana on cognitive functions in elderly with mild cognitive impairment." Journal of Ayurveda and Integrative Medicine (2020).
18. Yadava, R. K., and K. C. Audichya. "Role of rasayana remedies in the management of ageing and related disorders with special reference to mental health." Ancient science of life 21, no. 3 (2002): 173.
19. Kulatunga, R. D. H., Alankruta R. Dave, and Madhav Singh Baghel. "Clinical efficacy of Guduchyadi Medhya Rasayana on senile memory impairment." Ayu 33, no. 2 (2012): 202.
20. Tiwari, Vivek, Kamal Saba, Pandichelvam Veeraiiah, Jedy Jose, Subhash C. Lakhota, and Anant B. Patel. "Amalaki Rasayana improved memory and neuronal metabolic activity in AβPP-PS1 mouse model of Alzheimer's disease." Journal of biosciences 42, no. 3 (2017): 363-371.
21. Dwivedi, Vibha, and Subhash C. Lakhota. "Ayurvedic Amalaki Rasayana promotes improved stress tolerance and thus has anti-ageing effects in Drosophila melanogaster." Journal of biosciences 41, no. 4 (2016): 697-711.
22. Pathak, Pankaj, Mahesh Vyas, Hitesh Vyas, and Mukesh Naria. "Rasayana effect of Guduchi Churna on the life span of Drosophila melanogaster." Ayu 37, no. 1 (2016): 67.