

# DISCUSSION

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Health and health related issues have been given high values with respect to protection of one self from diseased conditions. Health has an important contribution to economic progress of self as well as nation. Healthy populations live longer, are more productive.

Āyurveda medicine a system of health care with historical roots in the Indian subcontinent, a Sanskrit word - Āyurveda which means “the wisdom of life” or “the knowledge of longevity”. In accordance to this definition, Ayurvedic medicine views health as much more than the absence of disease. Āyurveda is defined in eight branches, which are collectively called as Aṣṭāṅga Āyurveda. Rasāyana Cikitsā (Rejuvenation therapy) is one such branch of Āyurveda, which deals with various aspects of preventive health care. One of the important methods of preservation of positive health has been described in Āyurveda i.e. Rasāyana.

Kruṣṇa Tila or black sesame seeds are considered to have excellent medicinal properties and are recommended in Āyurveda for treatment purpose and as a Rasāyana dravya i.e. rejuvenating drug in vagbhata Samhita’s.

Hence to understand the role of Kruṣṇa Tila as Rasāyana in improving the health status an attempt was made in the present study, details of which are being discussed in this chapter.

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**DISCUSSION ON GENERAL OBSERVATIONS-****Age -**

All the cases were reported in the outpatient department of BVMF's Ayurved Hospital, pune. Among 100 patients, 39 patients [ 39 %] were in the age group of 40-45 years, 29 [ 29 %] patients were in age group of 45-50 years, 23 patients [ 23 % ] in the age group of 50-55 years and in 55-60 there were 09 [ 09 %] patients,

The prevalence of signs of early ageing is more visible in 40 to 50 years of age. According to Charak Ācārya the age above sixty years may be taken as old age, but Suśruta Ācārya increases this limit to seventy years. Present study reveals ageing signs after forties which might be due to decreased physical activity, changing food habits, improper & faulty diets, sedentary lifestyle, etc. has all lead to low Dhatu bala, low Ojas, vitiation of all Doshas.

**Sex-**

In the present study Majority of the patients i.e. 59 [59 %] patients were male and 41 [41 %] patients were of female sex Out of 100 patients. Stress and strain at physical and mental aspects is seen more in males which may be contributing factor or less reporting of females to the hospital may be one of the reasons.

**Marital status –**

In this study out of 100 patients 98 [98 %] were married and 02 [02 %] were unmarried. It does not indicate that married are more surely to get the early signs of ageing. This may be due to the manifestation of the ageing signs after middle age. So the percentage of married patients who were reported is more than unmarried.

**Occupation-**

Depending on the occupational distribution 27 [27 %] patients were accustomed to the house work; 14 [14 %] were in the business; 07 [07 %] to the agriculture work; 31 [31 %] were of office work; 12 [12 %] were teachers; 09 [09 %] were in others category. This shows that the patients who are doing less physical activity like house work, business, office work were afflicted more due to the sedentary life style, increased mental activity and stress & strain.

**Diet Pattern:**

33 [33 %] patients were of the vegetarian group; 67 [67 %] patients of the mixed group. This shows tendency of people inclining more towards mixed diet due to changes in dietary habits and growing fast food culture, outdoor eating habits which may be contributing factors.

**Socio economical status –**

Socio-economic status wise distribution of patients showed that majority of patients i.e. 79 [79 %] belonged to middle class followed by 14 [14 %] belonged to lower class, 07 [07 %] belonged to upper middle class. This

finding reflects the pattern of patients coming to the hospital of this institute according to their socio-economic conditions and also the increasing substantial sedentary habits among them.

**Prakriti –**

Out of 100 patients of this series 12 [12 %] were of Pitta -Vāta Prakriti; 25 [25 %] were of Vāta-Pitta Prakriti, 29 [29 %] were of Kapha-Pitta Prakriti; 17 [17 %] were of Pitta-Kapha Prakriti and Vāta-Kapha Prakriti each. Majority of cases were from the Dwandva Prakriti. Vāta and Pitta dominant Prakruti associated with Kapha Dosha were seen which resembles the involvement of Vāta dosha as the main Dosha involved in present condition. Later stages of age are supposed to be Vāta dominant as stated in Ayurvedic classics.

**DISCUSSION ON EFFECT OF THERAPY-****On Abhyavaharan shakti -**

The initial mean score was reduced from 1.5667 to 0.562. The Rasāyana treatment with Kruṣṇa Tila showed 64.12 % [p - 0.00] improvement which was statistically significant. Significant relief in signs of Abhyavaharan shakti may be due to the action of Kruṣṇa Tila at agni level i.e improving the agni by katu, tikta rasa and ushna virya, which justifies the mode of action of Rasāyana dravyas at the level of agni

**On Jarana shakti -**

The initial mean score was reduced from 2.16 to 0.682. The Rasāyana treatment with Kruṣṇa Tila showed 68.42 % [p - 0.00] improvement which was statistically significant. Properties of Kruṣṇa Tila i.e. tikta rasa and ushna virya helps in improving the digestive system and overall metabolic activities of the body.

**On Nidra -**

The initial mean score was reduced from 1.467 to 1.010. The Rasāyana treatment with Kruṣṇa Tila showed 25.69 % [p - 0.302] improvement which was statistically insignificant. There is no direct effect of Kruṣṇa Tila seen on the parameter of nidra i.e. sleep.

**On Twak parushata (dryness of skin)-**

The initial mean score was reduced from 0.4333 to 0.1667. The Rasāyana treatment with Kruṣṇa Tila showed 61.52 % [p - 0.05] improvement which was statistically significant.

Twak-prasadana being one of the important properties of Kruṣṇa Tila may have helped in reducing the signs of twak parushta. Ācārya Susruta highlights the effect of Tila where it's said to be having Twakprasadana (skin tonic) qualities, which is justified with above results.

The content of vitamin E contained in this black sesame is the highest in all foods of plant origin. Vitamin E is also associated with healthy skin.

**On Slatha asthi (bone weakness) & Slatha sandhi –**

The initial mean score was reduced from 0.8667 to 0.3333 in Slatha asthi. The Rasāyana treatment with Kruṣṇa Tila showed 61.54 % [p - 0.00] improvement in Slatha asthi which was statistically significant. The initial mean score was reduced from 1.4667 to 0.7000 in Slatha sandhi. The Rasāyana treatment with Kruṣṇa Tila showed 52.27 % [p - 0.01] improvement in Slatha sandhi which was statistically significant.

Kruṣṇa Tila helps in Nourishment of body at micro nutrient level and the snigdha and ushna properties helps in preventing the Dhatu Kshaya thereby pacifying Vāta Dosha (Slatha asthi, Slatha sandhi being Vāta dominant lakshanas) and overcoming the symptoms.

Kruṣṇa Tila (black sesame) is also rich in calcium and zinc, important minerals for maintaining strong bones and preventing osteoporosis.

Black sesame seeds are an extremely good source of calcium; studies have shown that one gram of seeds contains approximately 85 milligrams of calcium.

### **On Khalitya-**

The initial mean score was reduced from 2.40 to 0.70. The Rasāyana treatment with Kruṣṇa Tila showed 70.83 % [p - 0.00] improvement which was statistically significant.

Kruṣṇa Tila showed significant results in lashana of khalitya, which may be due to snigdha, sukshma guna of drug. The black sesame seeds are rich in B vitamins and iron, and deficiencies in these nutrients have been linked to premature graying of hair, hair fall etc.

The Chinese believe that the nutrients in black sesame seeds can help to correct a bodily deficiency (in *Ying* and *Xue* of the *Gan* and *Shen*) brought about by aging, worrying and the toils of life, which in turn bring about aging-related symptoms like hair fall, graying hair etc.

### **On Weight-**

The initial mean score changed from 71.6 to 72.5. The Rasāyana treatment with Kruṣṇa Tila showed 1.256 % [p - 0.8065] improvement which was statistically insignificant.

**On Quetelet's Index, Muscle Index, Lorenz's Constitutional Index -**

The initial mean score changed from 2.482 to 2.55 in *Quetelet's Index*. The Rasāyana treatment with Kruṣṇa Tila showed 17 % [p - 0.744] improvement which was statistically insignificant. Quetelet's index (QI) represents a measure of nutrition status based on the height and weight of the person. In present study the insignificant results reveal that Kruṣṇa Tila had no effect on macro- nutrition of the body.

The initial mean score changed from 5.32 to 6.05 in Muscle Index. The Rasāyana treatment with Kruṣṇa Tila showed 10.42 % [p - 0.0703] improvement which was statistically insignificant. Muscle index (MI) is an orientation method about someone's muscle development. The insignificant results show that Kruṣṇa Tila had no direct effect in development of musculature of the body.

The initial mean score changed from 13.40 to 14.13 in Lorenz's Constitutional Index. The Rasāyana treatment with Kruṣṇa Tila showed mean difference of 0.73 [p - 0.0614] improvement which was statistically insignificant. Lorenz's constitutional index (LKI) gives information about body's components. If a calculated value is a positive, than an increase in a body mass goes on the account of muscles and bones. On contrary, if it's a negative then the adipose tissue is responsible for an increased body mass. Insignificant results suggest no direct action of Kruṣṇa Tila on nourishment of body at muscle and tissue level.

The above three readings of *Quetelet's Index*, Muscle Index, and Lorenz's Constitutional Index suggest that the nourishment property of Kruṣṇa Tila may be at micro level, as it is rich in micro nutrients like vitamin E, vitamin B, iron, zinc, magnesium etc. as there was no significant relief observed in body mass or muscle mass based on these parameters.

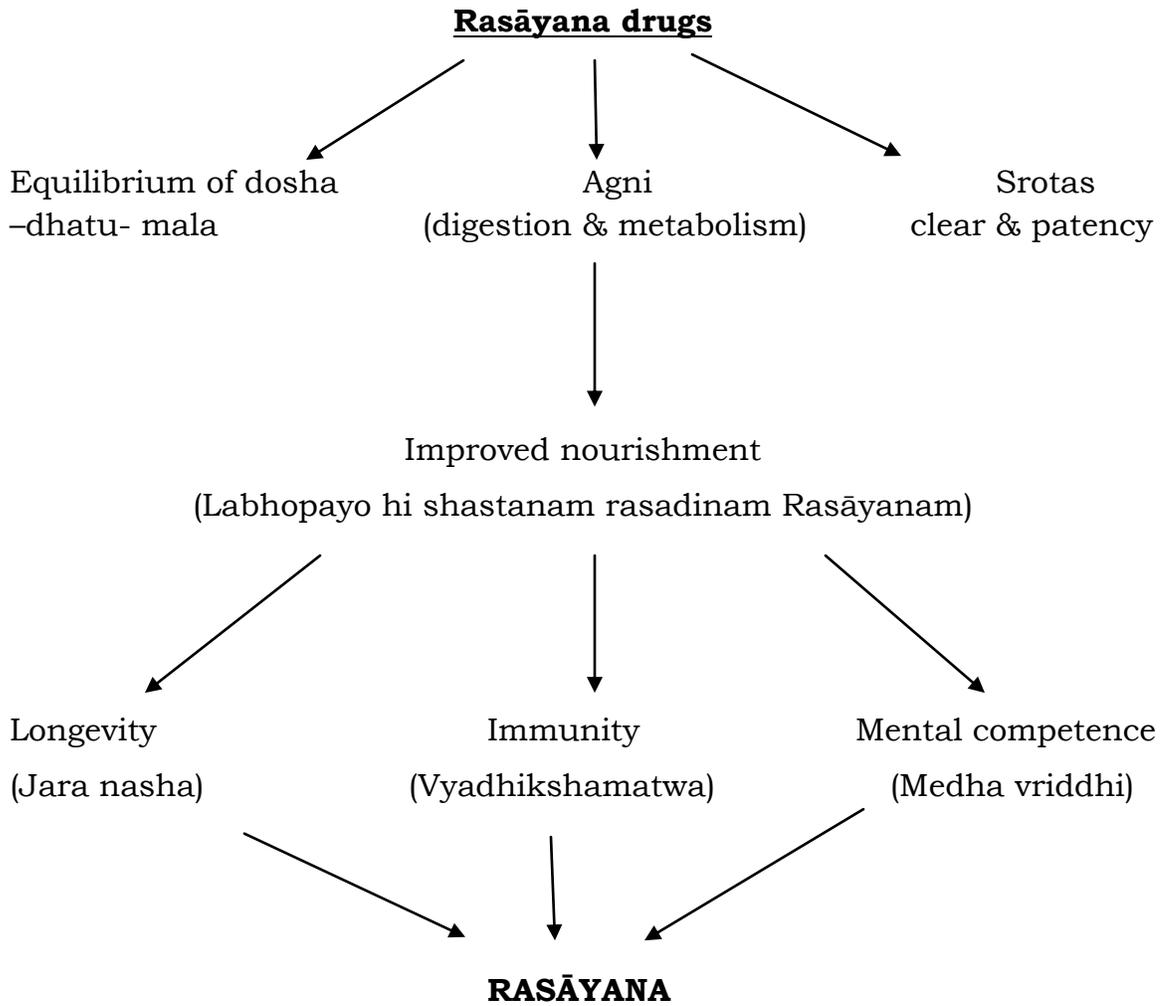
**Mechanism of Action (probable)**

“Taking black sesame seeds can heal all the chronic illness after 100 days, improve skin tone on body and face after 1 year, reverse gray hair after 2 years, and regrow teeth after 3 years.” explained in the *Materia Medica*, largest and most comprehensive manuscript in the history of Traditional Chinese medicine (TCM).

Sesame is probably the oldest reported oil plant to the mankind. Open Sesame! The magic phrase from the age-old tales of ‘Ali Baba and the Forty Thieves’ opened the cave hiding the treasure of the forty thieves. The phrase highlights the fact that sesame was a valuable commodity in those days.

- Rasāyana is a specialized therapy or branch of Āyurveda which influences the fundamental aspect of human body i.e. Dhatu, Agni and Srotas. It is assumed that different Rasāyana drugs may act with predominance effect at different levels.
- Rasāyana promotes nutrition by direct enrichment of the nutritional quality of rasa, by promoting nutrition through improving Agni thereby enhancing functions of Srotas i.e microcirculatory channels in body.
- It has been reported that the 'Rasāyanas' are rejuvenators, nutritional supplements and possess strong antioxidant activity.

- The black sesame seeds are rich in B vitamins and iron, and deficiencies in these nutrients have been linked to hair fall, premature graying of hair, memory impairments and hearing loss.
- It is also rich in calcium and zinc, important minerals for maintaining strong bones and preventing osteoporosis.
- The seed also contains substances known as sesamin and sesamolin, which are found to increase vitamin E supplies (important for skin health) and lower cholesterol levels.
- The Madhura, Snigdha and guru guna of Kruṣṇa Tila help in nourishment of the dosha.
- Ushna virya and snigdha guna of Kruṣṇa Tila helps in pacifying vitiated Vāta dosha which is predominant factor in causation of symptoms of ageing.
- Katu, Tikta Rasa and Ushna Virya of Kruṣṇa Tila may have helped in improving the Agni, improving the metabolic activities of the body, thereby enhancing the nourishment of the body.
- Kruṣṇa Tila has properties of “Yogavahi” & sukshma which helps in cleansing srotas, thereby improving functions of srotas, which in turn helps in nourishment and formation of good quality tissues.

**Mode of action of Rasāyana dravyas- chart no. - 08**

Thus it can be stated from the present study that the Rasāyana effect of Kruṣṇa Tila can be seen at the agni level i.e. katu, tikta rasa and ushna virya helps in improvement of agni (digestion & metabolism), sukshma and yogvahi gunas of Kruṣṇa Tila helps supply of various micro nutrients like zinc, calcium, magnesium, vitamin E, lignans (antioxidants) etc. to each and every cell of the body, justifying the mode of action of Rasāyana dravyas.