



Review on Classical *Ahar Dravya* For *Medoroga* (Obesity)

Dr. Manjula^{*1}, Dr. Sarvade Dattatray², Dr. Mita Kotecha³

*1 PG Scholar, Dept. of Dravyaguna, NIA, Jaipur

2 Ph.D Scholar, Dept. of Dravyaguna, IPGT&RA, Jamnagar

3 Prof. & HOD, Dept. of Dravyaguna, NIA, Jaipur

Corresponding author : Dr. Manjula , PG Scholar, Dept. of Dravyaguna, NIA, Jaipur;

Abstract :

The incidence of lifestyle diseases like Hypertension, Diabetes mellitus, Dyslipidemia, and overweight/obesity associated with cardiovascular diseases is high on the rise. Worldwide, at least 2.8 million people die each year as a result of being overweight or obese. Obesity is a social, psychological and somatic disorder leading to miserable life and a challenge to the physician in treatment since it exacerbates a large number of health related problems, independently and as an involvement with other diseases. The etiological factors mainly vitiate the Meda-Kapha and this vitiated Meda obstruct the path of Vata, which results into provocation of Vata. In the pathogenesis of obesity two factors are of prime significance, Tikshna Jatharagni (Intense metabolism) and Medodhatvagni-mandya (Reduced fat metabolism). Irrationality between two levels of Agni makes the disease Krichhra Sadhya (Difficult to treat). In the context of obesity, it has been recommended by earlier studies that it must be treated on the lines of Guru Apatarpana and the Ahara administered must pacify Vata, Kapha & Meda. Wide range of Ahar dravya having the above mentioned properties have been illustrated in Charaka Samhita viz. Nagar, Yava, Yavaka, Mudga, Kulattha, Adhaki, etc. Hence detailed review on these Ahar dravya in perspective of obesity is done. Owing to the importance of multigrain concept as recognized by Ayurveda thousands of years ago and also endorsed by modern science, need is felt to promote these Ahar dravya's which are pivotal for complete & balanced physical & psychological development of humans besides considerable immunological support.

Keywords: Obesity, Apatarpana, Medodhatvagni, Ahar, multigrain.

Introduction:

Due to sedentary lifestyle, the prevalence of obesity is increasing these days. Worldwide at least 2.8 million people die each year as a result of being overweight or obese, and an estimated 35.8 million (2.3%) of global DALYs are caused by overweight/obesity. Obesity is the leading cause of variety of health issues viz. High Blood Pressure, Diabetes, Heart Disease, High Cholesterol Levels, Infertility, Back pain, Cancer, Skin infection, Ulcer, Gall stones¹. The World Health Organisation^{2,3} and the National Institutes of Health has defined overweight as having a BMI between 25 & 29.9 kg/m²; and obesity as having a BMI greater than 30 Kg/m².

Disease Description in the classics:

It is quoted as *Sthaulya* or *Medoroga* in classical texts which is one among the eight despicable mentioned by *Acharya Charak*⁴ the reason being the 8 defects caused by them- Shortening of life span, hampered movement, difficulty in sexual intercourse, debility, foul smell, over sweating, too much hunger & excessive thirst⁵. The word *Sthaulya* is derived from the word '*Sthula*' which in turn is made from the sankrit word '*Sthula Paribrumhane*' meaning *Vridhhi*. Thereby, the word *Sthaulya* depicts excessive *vridhhi* of *Shareera*⁶. A person in whom there is excessive accumulation of *Meda* (fat/adipose tissue) and *Mamsa* (flesh/muscle tissue) leading to flabbiness of hips, abdomen, and breast has been categorized as *Atisthula*⁷.

Medas is body tissue predominant in *Prithvi* and *Ap Mahabhutas* similar to *Kapha Dosha*⁸. It is characterized by *Snigdha* (unctuous), *Guru* (heavy), *Sthula* (space occupying), *Picchila* (slimy), *Mridu* (tender/soft) and *Sandra* (dense) *guna* (qualities)⁹. *Sneha* (oleation), *Sweda* (production of sweat), *Drudhatva* (compactness), and *Asthipushti* (nourishment of bones) are the main function of *Medodhatu*¹⁰.

Consumption of *Sheeta* (cold), *Snigdha* (unctuous), *Madhuradi* and *Guru* (heavy to digest) *Kaphavardhaka* (sweet and *Kapha* increasing) drugs along with lack of exercise and sedentary life style result in excessive nourishment of *Medas* while other bodily elements (*Dhatus*) are deprived of nourishment. Disproportionately increased *Medas* is accountable for several serious consequences reported in *Charaka Samhita* like *Ayurhasa* (decrease of life span), *Javoparodha* (decrease in enthusiasm and activity), *Krichravayavayata* (difficulty in sexual act), *Dourbalya* (decrease of strength), *Dourgandhya* (bad odor), *Swedabadha* (excess perspiration) and *Kshut Pipasadhikya* (excessive hunger and thirst)¹¹.

Mandotsaham (less activity referring to sedentary lifestyle), *Atisnigdham* (excessive intake of fatty substances), *Atisthaulyam* (gross obesity), and *Mahashanam* (excessive eating) constitute for causation of *Prameha*¹² (urinary diseases including Diabetes) and these etiological factors may also initiate Dyslipidemia.

Acharya Susruta says that *rasa* is responsible for *Sthaulya & Karshya* of body. When one constantly takes diet increasing *Kapha*, indulges in eating when the previous meal is undigested, avoids physical exercise & sleeps in the day the *ahara rasa* being undigested & more sweet circulating in the body, due to excessive unctuousness, produces *Meda* which causes obesity. It's channels are obstructed by *kapha & Medas*; due to which successive *dhatus* are not nourished leading to low vitality and lastly dies being a victim of one of the severe diseases like carbuncle, fever, fistula-in-ano, abcess & *vatika* disorders¹³.

Ample literature is available regarding effect of *Lekhaneeya* drugs mentioned for *Sthaulya* but its other facet, *Lekhaneeya Ahar dravya* in context of *Sthaulya* still remains unexplored. But, administration of *Lekhaneeya ahar dravya* may prove as a good alternative nutritive therapy for *Medorog*. So, a critical analysis of the classical texts have been done regarding the same.

Acharya Charaka has prescribed *Guru Atparana* for *Sthaulya*¹⁴. Further, he advises for food & drinks alleviating *Vata* & reducing *Kapha* and *Meda*¹⁵. *Acharya Sushruta* mentioned *Virukshana & Chedaneeya dravya* for *Sthaulya*¹⁶.

Some *Ahar Dravyas* for *Sthaulya* mentioned in the Classics have been tabulated below.

Table 1: Ahar Dravyas for Sthaulya mentioned in the Classics

S. No	Ahar Dravya	Botanical/English Name	Family	Rasa	Guna	Veerya	Vipaka	Effect on dosha	References(Classical)	Research-References
1	Madhu	Honey	-	Madhura, Kashaya	Laghu (Susruta), Guru (Caraka), Ruksha, Pichila, Yogavahi	Sheeta	Katu	Pitta prasaman, Shleshma prashman, Vata pittaghna	[17,18, 19]	[20,21, 22]
2	Nagar (Ardraka)	Zingiber officinale Rosc.	Zingiberaceae	Katu	Guru, Ruksha, Tikshna	Ushna	Madhura	Kapha-Vata Shamaka	[17,23]	[24,25]
3	Yava	Hordeum vulgare Linn.	Poaceae	Madhura, Kashaya	Ruksh, Ishat Guru	Sheeta	-	Kapha Shamaka, Vata Vardhaka	[17,18, 26]	[27]
4	Prashatika (Udika)	Hygroryza aristata Nees	Poaceae	Kashaya Madhura	Ruksh	Sheeta	-	Vata vardhaka, Kapha pitta Shamak	[28,29]	-
5	Priyangu	Setaria italic (Linn.)	Poaceae	-	Guru, Ruksh	-	-	Vata vardhaka,	[30,31]	[32]

		Beauv						Kapha Nashaka		
6	Shyamaka	<i>Echinochola frumentacea</i> Linn.	Poaceae	<i>Kashaya Madhura</i>	<i>Ruksh</i>	<i>Sheeta</i>	-	<i>Vata vardhaka, Kapha pitta Shamak</i>	[30,18, 33]	[34]
7	Yavaka	Inferior varieties of Yava like grains which are smaller & awnless	-	-	-	-	-	-	[30, 35]	[32]
8	Joorna	<i>Sorghum vulgare</i> Pers.	Poaceae	<i>Kashaya Madhura</i>	<i>Laghu, Ruksh</i>	<i>Sheeta</i>	-	<i>Kapha pitta Shamak</i>	[30, 36]	[37, 38]
9	Kodrava	<i>Paspalum scrobiculatum</i> Linn.	Poaceae	<i>Kashaya Madhura</i>	<i>Laghu, Ruksh</i>	<i>Sheeta</i>	-	<i>Vata vardhaka, Kapha pitta Shamak</i>	[30, 18,39]	[40]
10.	Mudga	<i>Vigna radiata</i> (Linn.) Wilczek	Leguminosae, Papilionatae	<i>Kashaya Madhura</i>	<i>Laghu, Ruksh, Vishad</i>	<i>Sheeta</i>	<i>Katu</i>	<i>Kapha-pitta hara</i>	[30,18, 41]	[42]
11.	Kulattha	<i>Vigna unquiculata</i> (Linn.) Walp. Syn. <i>Dolichos biflorus</i> Linn.	Leguminosae	<i>Kashaya</i>	<i>Laghu, Sara</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kapha-Vata hara</i>	[30, 43]	[44,45]
12.	Chakamudgaka (Makushtha)	<i>Vigna aconitifolia</i> (Jacq.) Marechal	Leguminosae, Papilionatae	<i>Madhura</i>	<i>Ruksh</i>	<i>Sheeta</i>	-	<i>Vata vardhaka, Kapha pitta Shamak</i>	[30, 41,46]	-
13.	Adhakeebeeja	<i>Cajanus cajan</i> (Linn.) Millsp.	Leguminosae, Papilionatae	<i>Kashaya Madhura</i>	<i>Laghu, Ruksh</i>	<i>Sheeta</i>		<i>Vata vardhaka, Kapha pitta Shamak</i>	[47,48]	[49]
14.	Uddalaka (Kuttu)	<i>Paspalum scrobiculatum</i> Var. <i>commersonii</i> Stapf.	Poaceae	<i>Kashaya Madhura</i>	<i>Laghu, Ruksh</i>	<i>Ushna</i>	-	<i>Vata vardhaka, Kapha pitta Shamak</i>	[18, 50]	-
15.	Gavedhuka	<i>Coix lacryma jobi</i> Linn.	Poaceae	<i>Kashaya Madhura</i>	<i>Laghu, Ruksh</i>	<i>Sheeta</i>	-	<i>Kapha Nashaka</i>	[51,52]	[53]
16.	Chanaka	<i>Cicer arietinum</i> Linn.	Leguminosae, Papilionatae	<i>Kashaya Madhura</i>	<i>Laghu, Ruksh</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Vata vardhaka, Kapha pitta rakta shamaka; Ghritsamyukta tridosha shamana</i>	[54,55, 56]	-
17.	Masoora	<i>Lens culinaris</i> Medic	Leguminosae, Papilionatae	<i>Madhura</i>	<i>Laghu, Ruksh</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Vatala, Kapha pitta shamaka;</i>	[54,57, 58]	[59]

								Raktapitta hara		
18.	Laja	Dhana ki kheela	-	Madhura	Laghu, Ruksh	Sheeta		Pitta kapha chhida	[54,60]	-
19.	Dagdh Vartaku phala	Solanum melongena Linn.	Solanaceae	Madhura	Laghu	Ushna	-	Kapha Vata shamaka	[61,62]	[63]
20.	Sarshapa taila	Brassica campestris Linn. Var. Sarson prain	Cruciferae	Katu	Laghu, Teekshna	Ushna	Katu	Kapha Vata shamaka; Rakta Pitta kopaka	[64,65, 66]	-
21.	Til Taila	Sesamum indicum Linn.	Pedaliaceae	Madhura, Kashaya anurasa	Guru, Sookshma, Vikasi, Vishada, Vyavayi	Ushna	Madh ura	Vata Kapha Nashak;R akta Pitta karak	[64,67, 68]	-
22.	Ela	Elettaria cardamomu m Maton	Zingiberaceae	Katu, Madhura	Laghu, Ruksh	Sheeta	Madh ura	Tridoshha ra	[64,69]	-

Discussion

Defective dietary habits and lifestyle are main cause of obesity. The adoption of *Pathya Ahara* is the best management of the disease as it is easily available without a prescription, more easily accepted than a professional consultation with a physician or a nutritionist, 100% natural origin and perception that natural products are free from side effects. The diet with *Laghu, Ruksha, Kaphamedohara* and *Srotoshodhana* property should be ingested while avoiding *Guru, Snigdha, Kaphamedokara* and *Abhishyandi* foods. Most of the *Ahar Dravya* prescribed possess *Kashaya Madhura Rasa; Laghu Ruksh Guna & Vata kapha Nashaka* property, thereby exerting *Lekhaneeya* effect. This diet plays a crucial role in the alteration of pathophysiology of the persons thereby in the prevention and treatment of the *Medoroga* (Obesity).

Conclusion

In the emerging scenario where obesity has become the major health issue in India and across the globe, there is a need to emphasize management of obesity and also exploring the feasibility of introducing traditional systems of medicine such as *Ayurveda*, integrating with conventional medicine to achieve better healthcare. Further integration of *Ayurveda* and other Traditional system of medicine possibly offer safe and effective management of obesity. Owing to the importance of multigrain concept as recognized by *Ayurveda* thousands of years ago and also endorsed by modern science, need is felt to promote these *Ahar dravya* which are pivotal for complete & balanced physical & psychological development of humans besides considerable immunological support. The potential leads form *Ayurveda* texts may be taken forward for further development of safe and effective and user friendly nutritional forms through systematic clinical studies.

References

1. American Heart Association, National Institutes of Health and the centres for disease control & Prevention).
2. World Health Organisation, Obesity 2008 [Accessed on Oct 22, 2009], Available at <http://www.who.int/topics/obesity/en/>
3. Kumanyika S.K., Obarzanek E., Stettler N., et al, Population based prevention of obesity: the need for comprehensive promotion of healthful eating, physical activity and energy balance: A Scientific statement from American Heart Association Council on Epidemiology and prevention, Interdisciplinary committee for prevention (formerly the expert panel on Population and Prevention Science). *Circulation* 2008 July 22; 118(4):428-464 [PubMed: 18591433]

4. Agnivesa; Charak Samhita, Part-I; Pt. Kashinath Sastri, Dr. Gorakha Natha Chaturvedi (Commentator); Chaukhambha Bharati Academy, Varanasi; Reprint year 2012; Sutra Sthana; Chapter No.21; Verse No. 3: 278.
5. Agnivesa; Charak Samhita, Part-I; Pt. Kashinath Sastri, Dr. Gorakha Natha Chaturvedi (Commentator); Chaukhambha Bharati Academy, Varanasi; Reprint year 2012; Sutra Sthana; Chapter No.21; Verse No. 4: 278.
6. Amarkosha 3/1/134
7. Agnivesa; Charak Samhita, Part-I; Pt. Kashinath Sastri, Dr. Gorakha Natha Chaturvedi (Commentator); Chaukhambha Bharati Academy, Varanasi; Reprint year 2012; Sutra Sthana; Chapter No.21; Verse No. 9: 279.
8. Dalhana In: Commentator, Sushruta Samhita, Sutra Sthana, Doshadhatumala kshayavruddhi Vijnaniya Adhyaya, 15/4. 8th ed. Vaidya Jadavji Trikamji Acharya., editor. Varanasi: Choukhambha Orientalia; 2005. p. 68.
9. Agnivesha, Charaka, Dridhabala . In: Charaka samhita, Sutra Sthana, Deerghanjeeviteeya Adhyaya, 1/61. 5th ed. Vaidya Jadavaji Trikamji Acharya., editor. Varanasi: Chaukhamba Sanskrit Sansthan; 2009. p. 17.
10. Sushruta . In: Sushruta Samhita, Sutra Sthana, Doshadhatumalakshayavruddhi Vijnaniya Adhyaya, 15/7. 8th ed. Vaidya Jadavji Trikamji Acharya., editor. Varanasi: Choukhambha Orientalia; 2005. p. 67.
11. Agnivesha, Charaka, Dridhabala . In: Charaka samhita, Sutra Sthana, Ashtauninditeeya Adhyaya, 21/4. 5th ed. Vaidya Jadavaji Trikamji Acharya., editor. Varanasi: Chaukhamba Sanskrit Sansthan; 2009. p. 116.
12. Agnivesa; Charak Samhita, Part-I; Pt. Kashinath Sastri, Dr. Gorakha Natha Chaturvedi (Commentator); Chaukhambha Bharati Academy, Varanasi; Reprint year 2012; Nidana Sthana; Chapter No.4; Verse No. 51: 510.
13. Susruta; Susruta Samhita, Part-I; Kaviraj Ambika Dutta Shastri (Ed.); Chaukhambha Sanskrit Sansthan; Reprint 2014; 15/37: 81.
14. Agnivesa; Charak Samhita, Part-I; Pt. Kashinath Sastri, Dr. Gorakha Natha Chaturvedi (Commentator); Chaukhambha Bharati Academy, Varanasi; Reprint year 2012; Sutra Sthana; Chapter No.21; Verse No. 20: 281.
15. Agnivesa; Charak Samhita, Part-I; Pt. Kashinath Sastri, Dr. Gorakha Natha Chaturvedi (Commentator); Chaukhambha Bharati Academy, Varanasi; Reprint year 2012; Sutra Sthana; Chapter No.21; Verse No. 21: 282.
16. Susruta; Susruta Samhita, Part-I; Kaviraj Ambika Dutta Shastri (Ed.); Chaukhambha Sanskrit Sansthan; Reprint 2014; 15/38: 82.
17. Agnivesa; Charak Samhita, Part-I; Pt. Kashinath Sastri, Dr. Gorakha Natha Chaturvedi (Commentator); Chaukhambha Bharati Academy, Varanasi; Reprint year 2012; Sutra Sthana; Chapter No.21; Verse No. 23: 282.
18. Susruta; Susruta Samhita, Part-I; Kaviraj Ambika Dutta Shastri (Ed.); Chaukhambha Sanskrit Sansthan; Reprint 2014; 15/38: 82.
19. Ayurvedic Pharmacopeia of India, Part - I, Volume VI ; First Edition, 2009, Ministry of Health & Family Welfare, Govt. of India, Department of Ayurveda, Yoga-Naturopathy, Unani, Siddha & Homoeopathy (AYUSH); The Controller of Publications, Civil Lines, Delhi-110054 (Publisher): 214.
20. Pai S., Nargis R., Manula S.N.; Role of Samyoga and Samskara on Anti-hyperlipidaemic & Anti-obesity activity of Honey- An Experimental Study; J.Res.Trad.Medicine, Nov-Dec 2015, Volume 1, Issue 1: 16-22.
21. Ediriweera E.R.H.S.S., Premarathna N.Y.S.; Medicinal & Cosmetic uses of Bees honey- A review; Ayu 2012, April-June, 33(2): 178-182.
22. Bagde A.B., Sawant R.S., Bingare S.D., Sawai R.V., Nikumbh M.B.; Therapeutic & Nutritional values of Honey (Madhu); International Research Journal of Pharmacy, 2013, 4(3): 19-22.
23. Prof. Priya Vrat Sharma; Dravya Guna Vigyana, Vol. II; Reprint 2011; Chaukhambha Bharati Academy: 333.

24. Ebrahimzadeh Attari V., Asqhari Jafarabadi M., Zemestani M., Ostadrahimi A.; Effect of Zingiber officinale supplementation on obesity management with respect to the uncoupling protein 1-3826A>G & β 3-adrenergic Receptor Trp64Arg polymorphism; *Phytother Res.* 2015 July, 29(7):1032-9.
25. Goyal R., Kadnur S.V.; Beneficial effects of Zingiber officinale on goldthioglucose induced obesity; *Fitoterapia*, 77(3): 160-3, April 2006.
26. Prof. Priya Vrat Sharma; *Dravya Guna Vigyana*, Vol. III; Reprint 2000; Chaukhambha Bharati Academy: 155.
27. J Sushmitha., G Sumalatha., Yogitha Reddy, C.H.V.Alekhyia, C.H.Jyothirmayi; A Research article on evaluation of Anti-obesity activity of *Hordeum vulgare* grains in Albino rats; *Asian Journal of Phytomedicine and Clinical Research*.3(3), 2015, 78-87.
28. Agnivesha, Charaka Samhita with Ayurved Deepika commentary of Chakrapanidatta, Ed. Yadavji Trikamji Acharya, Chaukhambha Sanskrit Sansthan, Varanasi, Reprint 2014, Sutrasthana 21 / 25: 117.
29. Prof. Priya Vrat Sharma; *Dravya Guna Vigyana*, Vol. III; Reprint 2000; Chaukhambha Bharati Academy: 160.
30. Agnivesa; Charak Samhita, Part-I; Pt. Kashinath Sastri, Dr. Gorakha Natha Chaturvedi (Commentator); Chaukhambha Bharati Academy, Varanasi; Reprint year 2012; Sutra Sthana; Chapter No.21; Verse No. 25: 282.
31. Prof. Priya Vrat Sharma; *Dravya Guna Vigyana*, Vol. III; Reprint 2000; Chaukhambha Bharati Academy: 162.
32. Chougale Arun, Ajanal Manjunath; Anti-obesity drugs of Bhavaprakash Nighantu: A Literary survey; *IJRAP* 3(5), Sept-Oct 2012: 650-654.
33. Prof. Priya Vrat Sharma; *Dravya Guna Vigyana*, Vol. III; Reprint 2000; Chaukhambha Bharati Academy: 158.
34. Sharma P. & Rao M. V.; An analytical study of Pathya-Apathya in Medoroga with special reference to Hyperlipidaemia; *European Journal of Biomedical & Pharmaceutical Sciences*, 2015, Vol. 2, Issue 5: 580-587.
35. Thakur Balwant singh & K.C.Chunekar; Glossary of vegetable Drugs in Brhatrayi; Chaukhamba Amarbharati Prakashan, Varanasi; Edition 1999: 325.
36. Prof. Priya Vrat Sharma; *Dravya Guna Vigyana*, Vol. III; Reprint 2000; Chaukhambha Bharati Academy: 164.
37. Mathanghi S.K.; Nutraceutical properties of Great Millet- *Sorghum vulgare*; *International Journal of Food, Agriculture and Veterinary Sciences*, 2012, Vol.2 (2) May-August, pp 40-45.
38. Joseph M. Awika, Lloyd W. Rooney; *Sorghum* phytochemicals & their potential impact on Human health; *Phytochemistry* 65 (2004) 1199-1221.
39. Prof. Priya Vrat Sharma; *Dravya Guna Vigyana*, Vol. III; Reprint 2000; Chaukhambha Bharati Academy: 156.
40. Kiran P., Denni M., M. Daniel; Antidiabetic principles, Phospholipids & fixed oil of Kodo Millet (*Paspalum scrobiculatum* Linn.); *Indian Journal of Applied Research*, Vol. 4, Issue 2, Feb 2014, Page 13-15.
41. Prof. Priya Vrat Sharma; *Dravya Guna Vigyana*, Vol. III; Reprint 2000; Chaukhambha Bharati Academy: 164.
42. Kavya N., Kavya B., Ramarao V., Kishore Kumar R. and Venkateswarlu G.; Nutritional and Therapeutic uses of Mudga (*Vigna radiata* L.) R. Wilczek: A Potential interventional Dietary component; *Int. J. Res. Ayurveda Pharm.* 5(2), March-April 2014: 238-241.
43. *Ayurvedic Pharmacopeia of India*, Part -I, Volume I; First Edition, 2001, Ministry of Health & Family Welfare, Govt. of India, Department of Indian Systems of Medicine & Homoeopathy; The Controller of Publications, Civil Lines, Delhi-110054 (Publisher): 75.
44. Bhuvaneshwari S., Sushmita Dev K., Geetha V. Shastri, Bhuvaneshwari K.; Influence of hot Extract of *Dolichos biflorus* (Horse gram) on Body weight in overweight or Obese Human Volunteers; *International Journal of Pharmaceutical & Biological Archives* 2014; 5(1): 29-32.

45. Bhuvaneshwari S, Amala D, Geetha V. Shastri, Bhuvaneshwari K., Syamala G.; Phytochemical Investigation of *Dolichos biflorus* (Horse gram) seed extract; Global Journal of Traditional Medicinal systems 2014, 3(1): 8-10.
46. Thakur Balwant singh & K.C.Chunekar; Glossary of vegetable Drugs in Brhatrayi; Chaukhamba Amarbharati Prakashan, Varanasi; Edition 1999: 150.
47. Agnivesa; Charak Samhita, Part-I; Pt. Kashinath Sastri, Dr. Gorakha Natha Chaturvedi (Commentator); Chaukhambha Bharati Academy, Varanasi; Reprint year 2012; Sutra Sthana; Chapter No.21; Verse No. 26: 282.
48. Prof. Priya Vrat Sharma; Dravya Guna Vigyana, Vol. III; Reprint 2000; Chaukhambha Bharati Academy: 172.
49. Ogbunugafor H.A., Igwo- Ezikpe M.N., Igwilo I.O., Salisu T., Ezekwesili C.N.; Cajanus Cajun: Potentials as functional food; The Bioscientist, Vol. 1(2): 119-126, September 2013.
50. Prof. Priya Vrat Sharma; Dravya Guna Vigyana, Vol. III; Reprint 2000; Chaukhambha Bharati Academy: 157.
51. Agnivesa; Charak Samhita, Part-I; Pt. Kashinath Sastri, Dr. Gorakha Natha Chaturvedi (Commentator); Chaukhambha Bharati Academy, Varanasi; Reprint year 2012; Sutra Sthana; Chapter No.2; Verse No. 25: 46.
52. Agnivesa; Charak Samhita, Part-I; Pt. Kashinath Sastri, Dr. Gorakha Natha Chaturvedi (Commentator); Chaukhambha Bharati Academy, Varanasi; Reprint year 2012; Sutra Sthana; Chapter No.25; Verse No. 38: 317.
53. Sung Ok Kim, Su-Jin Yun and Eunjoo H. Lee; The Water Extract of Adlay Seed (*Coix lachrymajobi* var. *mayuen*) Exhibits Anti-Obesity Effects Through Neuroendocrine Modulation; The American Journal of Chinese Medicine, Vol. 35, No. 2, 297–308.
54. Govind Das; Bhaishajya Ratnavali, Ambika Dutta Shastry (Commentator), Rajeshwar Dutta Shastry (Ed.); Chaukhmbha Sanskrit Sansthan, Varanasi, 13th edition, 1997; 39/68: 529.
55. Prof. Priya Vrat Sharma; Dravya Guna Vigyana, Vol. III; Reprint 2000; Chaukhambha Bharati Academy: 175, 201.
56. Susruta; Susruta Samhita, Part-I; Kaviraj Ambika Dutta Shastri (Ed.); Chaukhambha Sanskrit Sansthan; Reprint 2014; Sutra Sthana 46/31,32: 244.
57. Prof. Priya Vrat Sharma; Dravya Guna Vigyana, Vol. III; Reprint 2000; Chaukhambha Bharati Academy: 174.
58. Susruta; Susruta Samhita, Part-I; Kaviraj Ambika Dutta Shastri (Ed.); Chaukhambha Sanskrit Sansthan; Reprint 2014; Sutra Sthana 46/30,33: 244.
59. Zahra Aslani , Beitollahe Alipour, Parvin Mirmiran, Zahra Bahadoran; Lentil's (*Lens culinaris* L.) functional properties in prevention and treatment of non-communicable chronic diseases: A review; International Journal of Nutrition and Food Sciences 2015; 4(2-1): 15-20.
60. Bhava Misra; Bhava Prakash Nighantu; K.C.Chunekar (Commentator), G.S.Pandey (Ed.); Chaukhambha Bharati Academy, Varanasi; Reprint, 2004; Verse no. 175; page 745.
61. Govind Das; Bhaishajya Ratnavali, Ambika Dutta Shastry (Commentator), Rajeshwar Dutta Shastry (Ed.); Chaukhmbha Sanskrit Sansthan, Varanasi, 13th edition, 1997; 39/69: 529.
62. Prof. Priya Vrat Sharma; Dravya Guna Vigyana, Vol. III; Reprint 2000; Chaukhambha Bharati Academy: 209,210.
63. Ossamulu, Ifeanyi Famous, Akanya, Helmina Olufunmilayo, Jigam, Ali Audu, Egwim , Evans Chidi Adeyemi, Henry Yemi; Hypolipidemic Properties of Four Varieties of Eggplants (*Solanum melongena* L.); International Journal of Pharmaceutical Science Invention, Volume 3, Issue 8, August 2014, PP.47-54.
64. Govind Das; Bhaishajya Ratnavali, Ambika Dutta Shastry (Commentator), Rajeshwar Dutta Shastry (Ed.); Chaukhmbha Sanskrit Sansthan, Varanasi, 13th edition, 1997; 39/70: 529.
65. Prof. Priya Vrat Sharma; Dravya Guna Vigyana, Vol. II; Reprint 2011; Chaukhambha Bharati Academy: 152.
66. Bhava Misra; Bhava Prakash Nighantu; K.C.Chunekar (Commentator), G.S.Pandey (Ed.); Chaukhambha Bharati Academy, Varanasi; Reprint, 2004; Taila Varga, Verse no. 13,14; page 780.

67. Prof. Priya Vrat Sharma; Dravya Guna Vigyana, Vol. II;:Reprint 2011; Chaukhambha Bharati Academy: 120
68. Bhava Misra; Bhava Prakash Nighantu; K.C.Chunekar (Commentator), G.S.Pandey (Ed.); Chowkhamba Bharati Academy, Varanasi; Reprint, 2004; Taila Varga, Verse no.2-4; page 779.
69. Prof. Priya Vrat Sharma; Dravya Guna Vigyana, Vol. II;:Reprint 2011; Chaukhambha Bharati Academy: 719,720.