



Review Article

Medohara and Lekhaniya dravyas (anti-obesity and hypolipidemic drugs) in Ayurvedic classics: A critical review

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Abstract

Santarpanotha Vikaras (diseases due to excessive nutrition) are increasing during current times. *Medodushti* (disorders of fat metabolism) serves as one of the important etiological factor in most of these disorders including Ischemic Heart Disease (IHD). IHD is identified as one of the leading cause of morbidity and mortality worldwide in both developing and developed countries. Retention and deposition of serum lipids resulting in decreased flow of blood in coronary arteries being the underlying cause. Conventional and herbal drugs are being used to lower levels of serum cholesterol to prevent this menace. In this regard, an attempt has been made to critically review the *Medohara* and *Lekhaniya* (Anti-obesity and Hypolipidemic) drugs mentioned in *Ganas* (group of drugs) of Ayurvedic classical texts which may abet our understanding of prevention and management of conditions like Dyslipidemia and its complications. Administration of drugs possessing *Tikta Rasa* (bitter taste), *Ushna Veerya* (hot in potency), *Laghu* and *Ruksha Guna* (light and dry qualities), *Katu Vipaka* and *Vata Kaphahara* actions were noted during the analysis.

Key words: Dyslipidemia, *Lekhana*, *Medohara*, obesity, herbs

Introduction

Growing prevalence of obesity worldwide is an increasing concern surrounding the rising rates of Diabetes, Coronary and Cerebrovascular disease with the consequent health and financial implications for the population.^[1] Obesity promotes a cascade of secondary pathologies including Diabetes, Insulin resistance, Dyslipidemia, Inflammation, Thrombosis, Hypertension, Metabolic syndrome, and Obstructive Sleep Apnea.^[2] Increasing Body Mass Index (BMI) levels mediate a common pattern of Dyslipidemia characterized by higher triglycerides, lower High Density Lipoproteins (HDL), and increased small, dense Low Density Lipoproteins (LDL) particles, which are independent risk factors for coronary disease.^[3] Atherosclerosis or hardening of the arteries results from buildup of cholesterol on the interior blood vessel walls.^[4] Dyslipidemia associated with obesity predicts majority of the increased cardiovascular risks seen in obese patients.^[5]

Atisthaulya (obesity) is considered as one of the eight despicable conditions as described by *Acharya Charaka*.^[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 *Guru* (heavy to digest), *Sheeta* (cold), *Snigdha* (unctuous), *Madhuradi 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 *Ayuhrasa* (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.

Obesity and Hyperlipidemia being the most common problems in adolescents as well as older age groups, there is

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a necessity to combat them with drugs mentioned in classics which maybe useful to address the associated conditions of *Medodushti*. In this regard, an attempt has been made to critically review the *Medohara* drugs mentioned in the classical texts which may abet our understanding of prevention and management of the conditions like Obesity and Dyslipidemia.

Materials and Methods

Compilation and tabulation of *Lekhaneeya* (which scrapes excess *Medas*) and *Medohara* (which removes or dries up excess *Medas*) herbs were done from *Ganas* of *Charaka Samhita*,^[13] *Sushruta Samhita*,^[14] *Astanga sangraha*,^[15] and *Ashtanga Hrudaya*.^[16] *Rasa* (taste), *Guna* (quality), *Veerya* (potency), *Vipaka* (drug metabolism), Action on *Doshas* and useful part of the herbs were compiled from *Dhanvantari Nighantu*,^[17] *Bhavaprakasha Nighantu*,^[18] *Nighantu Adarsha*,^[19] and Textbook of *Dravyaguna*^[20,21] which was tabulated. The tabulated data were then analyzed.

Results

Charaka has given single *Gana* of 10 drugs (*Lekhaniya Gana*), while *Sushruta* and *Vagbhata* have mentioned 8 and 10 *Ganas* respectively. A total of 160 different herbs have been enlisted from these various groups [Table 1]. Analysis of 100 drugs has been made, which are taken from different *Ganas* of classical texts after excluding the controversial drugs [Table 2]. Based on relevant references from classical texts and modern texts of *Dravyaguna*, useful part was recorded. The part used appears to be root, root bark, stem bark, and fruit in large number of drugs [Table 3]. *Rasa* and *Anurasa* of drugs have been enlisted. *Tikta Rasa* is seen in 59 herbs, *Katu* in 48, *Kashaya* in 41, *Madhura* in 33, and *Amla* in eight herbs [Table 4]. Herbs with proven lipid-lowering activity reported through different research models are tabulated [Table 5].

Table 1: List of *Medohara Ganas* mentioned in classical literature

| Name of <i>Gana</i> | C.S | S.S | A.S | A.H |
|-----------------------------|-----|-----|-----|-----|
| <i>Lekhaniya Gana</i> | + | - | - | - |
| <i>Varunadi Gana</i> | - | + | + | + |
| <i>Shalasaradi Gana</i> | - | + | - | - |
| <i>Lodhradi Gana</i> | - | + | + | + |
| <i>Arkadi Gana</i> | - | + | + | + |
| <i>Mushkakadi Gana</i> | - | + | + | + |
| <i>Nyagrodhdi Gana</i> | - | + | + | + |
| <i>Tryushana</i> | - | + | - | - |
| <i>Ushakadi Gana</i> | - | + | + | + |
| <i>Asanadi Gana</i> | - | - | + | + |
| <i>Surasadi Gana</i> | - | - | + | + |
| <i>Vatsakadi Gana</i> | - | - | + | + |
| <i>Vacha Haridradi Gana</i> | - | - | + | + |

C.S: *Charaka Samhita*, S.S: *Sushruta Samhita*, A.S: *Ashtanga Sangraha*, A.H: *Ashtanga Hrudaya*

Table 2: List of *Medohara* drugs

| Sanskrit name | Latin name |
|--------------------------------------|--|
| 1. <i>Musta</i> | <i>Cyperus rotundus</i> Linn. |
| 2. <i>Kushta</i> | <i>Sausurea lappa</i> Decne. |
| 3. <i>Haridra</i> | <i>Curcuma longa</i> Linn. |
| 4. <i>Daruharidra</i> | <i>Berberis aristata</i> DC. |
| 5. <i>Vacha</i> | <i>Acorus calamus</i> Linn. |
| 6. <i>Ativisha</i> | <i>Aconitum heterophyllum</i> Wall. ex Royle. |
| 7. <i>Katuki</i> | <i>Picrorhiza kurroa</i> Royle. ex Benth. |
| 8. <i>Chitraka</i> | <i>Plumbago zeylanica</i> Linn. |
| 9. <i>Chirabilva</i> | <i>Holoptelia integrifolia</i> |
| 10. <i>Pippali</i> | <i>Piper longum</i> Linn. |
| 11. <i>Maricha</i> | <i>Piper nigrum</i> Linn. |
| 12. <i>Shunti</i> | <i>Zingiber officinalis</i> Rosc. |
| 13. <i>Varuna</i> | <i>Crataeva nurvala</i> Buch.-Ham. |
| 14. <i>Shigru</i> | <i>Moringa oleifera</i> Lam. |
| 15. <i>Tarkari</i> | <i>Clerodendrum phlomidis</i> Linn.f. |
| 16. <i>Agnimantha</i> | <i>Premna integrifolia</i> Linn. |
| 17. <i>Saireyaka</i> <i>Dwaya</i> | <i>Barleria species</i> |
| 18. <i>Bimbi</i> | <i>Coccinia indica</i> W. and A. |
| 19. <i>Shatavari</i> | <i>Asparagus racemosus</i> Willd. |
| 20. <i>Bilwa</i> | <i>Aegle marmelos</i> (L.) Correa. ex Roxb. |
| 21. <i>Shireesha</i> | <i>Albizia lebbek</i> (Linn.) Willd. |
| 22. <i>Asana</i> | <i>Pterocarpus marsupium</i> Roxb. |
| 23. <i>Taala</i> | <i>Borassus flabellifer</i> Linn. |
| 24. <i>Shaaka</i> | <i>Tectona grandis</i> Linn. f. |
| 25. <i>Aguru</i> | <i>Aquilaria agallocha</i> Roxb. |
| 26. <i>Badara</i> | <i>Ziziphus jujuba</i> Mill. |
| 27. <i>Shaala</i> | <i>Shorea robusta</i> Gaertn. f. |
| 28. <i>Kadali</i> | <i>Musa paradisiaca</i> Linn. |
| 29. <i>Shalasaradi</i> | <i>Niryasa</i> of <i>Shaala</i> |
| 30. <i>Priyala</i> | <i>Buchanania lanzan</i> Spreng. |
| 31. <i>Khadira</i> | <i>Acacia catechu</i> (Linn. f.) Willd. |
| 32. <i>Dhava</i> | <i>Anogeissus latifolia</i> Wall. ex Bedd. |
| 33. <i>Katphala</i> | <i>Myrica nagi</i> Hook. f. non-Thunb. |
| 34. <i>Kramuka</i> | <i>Areca catechu</i> Linn. |
| 35. <i>Bhurja</i> | <i>Betula utilis</i> D. Don. |
| 36. <i>Ashoka</i> | <i>Saraca asoca</i> (Roxb.) DeWilde. |
| 37. <i>Tinisha</i> | <i>Ougeinia dalbergioides</i> Benth. |
| 38. <i>Chandana</i> | <i>Santalum album</i> Linn. |
| 39. <i>Kuchandana</i> | <i>Pterocarpus santalinus</i> Linn. f. |
| 40. <i>Moorva</i> | <i>Maerua arenaria</i> Hook. f. and Thoms. |
| 41. <i>Vajravruksha</i> | <i>Euphorbia neriifolia</i> auct. Non Linn. |
| 42. <i>Amalaki</i> | <i>Emblia officinalis</i> Gaertn. |
| 43. <i>Vibheetaki</i> | <i>Terminalia bellirica</i> Roxb. |
| 44. <i>Hareetaki</i> | <i>Terminalia chebula</i> Retz. |
| 45. <i>Arka</i> | <i>Calotropis procera</i> (Ait.) R.Br. |
| 46. <i>Alarka</i> | <i>Calotropis gigantea</i> (Linn.) R.Br. ex.Ait. |
| 47. <i>Karanja</i> | <i>Derris indica</i> (Lamk.) Bennet. |
| 48. <i>Putikaranja</i> | <i>Caesalpinia bonduc</i> (L.) Roxb. |
| 49. <i>Nagadanti</i> | <i>Baliospermum montanum</i> Muell. |
| 50. <i>Mayuraka</i> | <i>Achyranthes aspera</i> Linn. |

(Contd.)

Table 2: Contd...

| Sanskrit name | Latin name |
|---------------------------------------|---|
| 51. <i>Bharngi</i> | <i>Clerodendrum serratum</i> (Linn.) Moon. |
| 52. <i>Rasna</i> | <i>Pluchia lanceolata</i> Oliver. |
| 53. <i>Jyotishmati</i> | <i>Celastrus paniculatus</i> Willd. |
| 54. <i>Ingudi</i> | <i>Balanites aegyptiaca</i> (Linn.) Delile. |
| 55. <i>Madhooka</i> | <i>Bassia longifolia</i> Koen. |
| 56. <i>Kutannata</i> | <i>Oroxylum indicum</i> Vent. |
| 57. <i>Tinduka</i> | <i>Diospyros ebenum</i> Koenig. |
| 58. <i>Naktamala</i> | <i>Pongamia glabra</i> Bent. |
| 59. <i>Chavya</i> | <i>Piper chaba</i> Hunter non-Blume. |
| 60. <i>Pippali mula</i> | Roots of <i>P. longum</i> |
| 61. <i>Shimshipa</i> | <i>Dalbergia sissoo</i> Roxb. ex DC. |
| 62. <i>Kutaja</i> | <i>Holarrhena antidysenterica</i> (Linn.) Wall. |
| 63. <i>Sarala</i> | <i>Pinus roxburghii</i> Sarg. |
| 64. <i>Kalinga</i> | Seeds of <i>H. antidysenterica</i> . |
| 65. <i>Amra</i> | <i>Mangifera indica</i> Linn. |
| 66. <i>Arjuna</i> | <i>Terminalia arjuna</i> (Roxb.) W. & A. |
| 67. <i>Madhuka</i> | <i>Glycyrrhiza glabra</i> Linn. |
| 68. <i>Aswatha</i> | <i>Ficus religiosa</i> Linn. |
| 69. <i>Bhallataka</i> | <i>Semecarpus anacardium</i> Linn. f. |
| 70. <i>Kadamba</i> | <i>Anthocephalus cadamba</i> Miq. |
| 71. <i>Nyagrodha</i> | <i>Ficus benghalensis</i> Linn. |
| 72. <i>Udumbara</i> | <i>Ficus racemosa</i> Linn. |
| 73. <i>Palasha</i> | <i>Butea monosperma</i> (Lam.) Taub. |
| 74. <i>Koshamra</i> | <i>Schleichera oleosa</i> (Lour.) Oken. |
| 75. <i>Choraka</i> | <i>Angelica glauca</i> Edgew. |
| 76. <i>Jambu</i> | <i>Syzygium cuminii</i> (Linn.) Skeels. |
| 77. <i>Kapeetana</i> | <i>Thespesia populnea</i> Soland. ex Correa. |
| 78. <i>Rodhra/ Lodhra</i> | <i>Symplocos racemosa</i> Roxb. |
| 79. <i>Vanjula</i> | <i>Salix caprea</i> Linn. |
| 80. <i>Hingu</i> | <i>Ferula foetida</i> Regel. |
| 81. <i>Surasa</i> | <i>Ocimum sanctum</i> Linn. |
| 82. <i>Vidanga</i> | <i>Embelia ribes</i> Burm. f. |
| 83. <i>Jeeraka</i> | <i>Cuminum cyminum</i> Linn. |
| 84. <i>Devahva</i> | <i>Cedrus deodara</i> (Roxb.) Loud. |
| 85. <i>Patha</i> | <i>Cissampelos pareira</i> Linn. |
| 86. <i>Kalashree/ Prisniparni</i> | <i>Uraria picta</i> Desv. |
| 87. <i>Ajamoda</i> | <i>Trachyspermum roxburghianum</i> (DC.) Craib. |
| 88. <i>Siddharta</i> | <i>Brassica campestris</i> Linn. |
| 89. <i>Kasamarda</i> | <i>Cassia occidentalis</i> Linn. |
| 90. <i>Kantakari</i> | <i>Solanum xanthocarpum</i> S. and W. |
| 91. <i>Madana</i> | <i>Randia dumetorum</i> Poir. |
| 92. <i>Plaksha</i> | <i>Ficus lacor</i> Buch.-Ham. |
| 93. <i>Bhustrna</i> | <i>Andropogon citratus</i> DC. |
| 94. <i>Darbha</i> | <i>Desmostachya bipinnata</i> Stapf. |
| 95. <i>Ela</i> | <i>Elettaria cardamomum</i> Maton. |
| 96. <i>Bruhati</i> | <i>Solanum indicum</i> Linn. |
| 97. <i>Jhingini</i> | <i>Odina wodier</i> Roxb. |
| 98. <i>Sarja</i> | <i>Vateria indica</i> Linn. |
| 99. <i>Elavaluka</i> | <i>Prunus cerasus</i> Linn. |
| 100. <i>Ajakarna</i> | <i>Dipterocarpus turbinatus</i> Gaertn.f. |

Table 3: Categorization of herbs on the basis of part used

| Part used | No. of herbs |
|-------------------|--------------|
| Root, root bark | 36 |
| Stem bark | 34 |
| Fruit | 23 |
| Leaf, tender leaf | 15 |
| Heartwood | 12 |
| Seed | 7 |
| Gum | 5 |
| Flower | 5 |
| Latex | 5 |
| whole plant | 5 |
| Rhizome | 4 |
| Oil | 3 |
| Tuber | 1 |

Discussion

Kayagni or *Pachakagni* (digestive fire) contributes its moieties to the *Dhatu* or *Dhatwagni* dealing with tissue metabolism. *Ama* (undigested toxic substance) which results from hypofunctioning of *Jatharagni* (digestive fire) may clog to the *Srotas* (channels) leading to *Srotorodha* (obstruction of channels) which in turn increases *Medodushti* and decreases the nutrient supply to subsequent *Dhatu*s namely *Asthi* (bone tissue), *Majja* (bone marrow), and *Shukra* (fertility promoting substance).^[22]

Acharya Charaka has furnished six therapeutic measures (*Shadupakrama*), i.e., *Langhana* (lightening therapy), *Brumhana* (nourishing therapy), *Rukshana* (drying therapy), *Snehana* (oleation therapy), *Swedana* (fomentation therapy), and *Stambhana* (astringent therapy).^[23] *Langhaneeya Dravya* (drugs causing lightness) can achieve the therapeutic effect by the dominance of *Gunas* like *Laghu* (light), *Ushna* (hot), *Teekshna* (strong), *Vishada* (non-slimy), *Ruksha* (dry), *Sukshma* (subtle), *Khara* (rough), *Sara* and *Kathina* (hard). *Rukshaniya* drugs (causing dryness) should possess *Gunas* like *Ruksha*, *Laghu*, *Khara*, *Teekshna*, *Ushna*, *Sthira*, *Vishada*, and *Kathina*.^[24] The comparison of *Gunas* of both the *Upakramas* clearly indicate that a drug possessing the *Gunas* namely *Laghu*, *Ruksha*, *Ushna*, *Teekshna*, *Vishada*, *Khara*, and *Kathina* may significantly subdue *Kapha* and *Medodhatu Dushti* in the conditions like Obesity, Hyperlipidemia, and Diabetes mellitus.

Analysis of the herbs clearly indicate that *Tikta Rasa Dravyas* dominates the list (59) followed by *Katu* (48), *Kashaya* (41), *Madhura* (33), and *Amla* (8) *Rasa* drugs [Table 4]. *Tikta* being *Laghu* and *Ruksha* reduces vitiation of *Kapha* and *Medodushti* along with neutralization of *Amavisha* through its *Deepaniya*, *Pachaniya*, and *Vishaghna*^[25] activities. *Katu rasa* exerts similar effect on *Ama*, *Kapha*, and *Medodushti* by its *Laghu*, *Ushna*, and *Ruksha Gunas*.^[26] It can provide significant *Rukshaneeya* effect in comparison to *Tikta*, *Kashaya Dravyas* due to association with *Ushna Guna*. *Kashaya Rasa* being most *Ruksha*^[27] may facilitate for *Shoshana* (absorption) of liquefied or detoxified *Kapha* and *Medodhatu*. The *Dravya* possessing *Tikta Rasa* and *Katu Rasa* are to be prescribed in the initial stages (Border line of hyperlipidemia) of treatment of

Dyslipidemia and *Kashaya* dominant drugs can be incorporated in the subsequent phases (High and very high hyperlipidemia) which facilitates for *Shoshana* (absorption) of liquefied or detoxified *Kapha* and *Medodhatu*, a state produced by *Tikta Rasa* and *Katu Rasa*.

The application of *Amla Rasa* which is attributed with *Deepana*, *Vatanulomana*, and *Hridya*^[25] properties may be preferred in the last phase which subdues *Vataprakopa* induced by *Tikta*, *Katu*, and *Kashaya Rasa* drugs. *Agni Mahabhuta* dominant *Rasa* like *Katu* and *Amla* should be judiciously applied by taking into consideration the involvement of *Agni*, *Ama*, and *Srotrodha* to establish normal lipidemic state in the body. Drugs like *Priyala* (*Buchanania lanzan* Spreng.), *Shatavari* (*Asparagus racemosus* willd.), *Yashtimadhu* (*Glycyrrhiza glabra* Linn.), etc., possessing *Madhura Rasa* and *Snigdha Guna* may help to soften and uncton^[29] the vessels hardened overtime by the deposited fat as in the case in Atherosclerosis.

Enumeration of *Gunas* of *Medohara* drugs [Table 4] clearly indicate the presence of *Laghu* and *Ruksha* (67 herbs and 59 herbs respectively) followed by *Teekshna* and *Snigdha Guna* (25 herbs and 23 herbs respectively) in majority of the drugs. It is also noted that some of the drugs possess *Guru* (20 herbs) and *Sara* (10 herbs) *Guna*. Among the analyzed drugs, *Ushna Veerya* drugs are more in number (59 herbs) in comparison to *Sheeta Veerya* (40 herbs) and only one drug is categorized under *Anushna Veerya* (*Shireesha*). Among *Ashta Veerya*,^[30] *Laghu*, *Ruksha*, *Ushna*, and *Teekshna* contribute for *Langhana* and *Rukshaniya* effect. It is very explicit that *Laghu* and *Ruksha Guna* associated with *Teekshna Guna* and *Ushna*

Veerya plays predominant role for eschewing vitiation of *Kapha Dosh* and *Medodhatu*.

Sushruta's classification of *Vipaka* reflects two dominant *Gunas*, i.e., *Guru* and *Laghu* further quoted as *Katu* and *Madhura Vipaka*.^[31] Drugs with *Katu Vipaka* (82 herbs) are relatively more in number followed by *Madhura* (17 herbs) and *Amla Vipakas* (1 herbs)[Table 4]. The *Vipaka* of *Langhana* and *Rukshaniya* drug should be *Laghu* which is also interpreted as *Katu Vipaka*.

Majority of herbs possessing *Kaphahara* (89 herbs) and *Vatahara* (67 herbs) activity [Table 4] are also found to be *Medohara* in action. Antagonistic measures are usually employed to treat *Doshavridhi*.^[32] But in case of *Medodushti*, *Sheeta Veerya* dominant herbs are also suggested. *Shalasaradi Gana*,^[33] *Lodhradi*,^[34] and *Nyagrodhadi*^[35] *Ganas* containing *Kashaya*, *Tikta*, and *Sheeta Veerya* drugs increases *Ruksha Guna* (dry) resulting in *Medo Shoshana* (absorption of vitiated fat).

The information with regards to part used has been compiled from *Dravyaguna* works of 20th century. Heartwood and bark forms the potent parts in majority of drugs in *Shalasaradi Gana* and *Lodhradi Gana* respectively. It is seen that the drug with root as useful part has been referred frequently (36 herbs) [Table 3]. Stem bark, fruit, leaf, and heartwood are also used along with less utilization of seed, flower, gum, rhizome etc.

Acharya Sushruta has given 8 *Ganas*, whereas *Vagbhata* included 10 *Ganas* to be *Medohara* [Table 1]. *Surasadi Gana* is not indicated for *Medoroga* by *Sushruta*,^[36] while *Vagbhata* has included it.^[37] The non-herbal drugs in *Ushakadi*

Table 4: Number of drugs based on analysis of *Rasa*, *Vipaka*, *Veerya*, *Guna* and *Doshaharatwa*

| <i>Rasa</i> | No | <i>Vipaka</i> | No | <i>Veerya</i> | No | <i>Guna</i> | No | <i>Doshahara</i> | No |
|----------------|----|----------------|----|----------------|----|----------------|----|------------------|----|
| <i>Tikta</i> | 59 | <i>Katu</i> | 82 | <i>Ushna</i> | 59 | <i>Laghu</i> | 67 | <i>Kapha</i> | 89 |
| <i>Katu</i> | 48 | <i>Madhura</i> | 17 | <i>Sheeta</i> | 40 | <i>Ruksha</i> | 59 | <i>Vata</i> | 67 |
| <i>Kashaya</i> | 41 | <i>Amla</i> | 1 | <i>Anushna</i> | 1 | <i>Tikshna</i> | 25 | <i>Pitta</i> | 48 |
| <i>Madhura</i> | 33 | | | | | <i>Snigdha</i> | 23 | | |
| <i>Amla</i> | 8 | | | | | <i>Guru</i> | 20 | | |
| <i>Lavana</i> | 1 | | | | | <i>Sara</i> | 10 | | |

Table 5: List of herbs proven by researches for hypolipidemic

| | | | | |
|-----------------------|-----------------------|-----------------------|--------------------------|---------------------------|
| 1. <i>Musta</i> | 16. <i>Agnimantha</i> | 31. <i>Khadira</i> | 46. <i>Alarka</i> | 61. <i>Shimshipa</i> |
| 2. <i>Jambu</i> | 17. <i>Salasara</i> | 32. <i>Dhava</i> | 47. <i>Karanja</i> | 62. <i>Vrkshaka</i> |
| 3. <i>Haridra</i> | 18. <i>Bimbi</i> | 33. <i>Palasha</i> | 48. <i>Putikaranja</i> | 63. <i>Kalashree</i> |
| 4. <i>Daruharidra</i> | 19. <i>Shatavari</i> | 34. <i>Kramuka</i> | 49. <i>Madana</i> | 64. <i>Kalinga</i> |
| 5. <i>Vacha</i> | 20. <i>Bilwa</i> | 35. <i>Bruhati</i> | 50. <i>Mayuraka</i> | 65. <i>Amra</i> |
| 6. <i>Kasamarda</i> | 21. <i>Shireesha</i> | 36. <i>Asoka</i> | 51. <i>Ajamoda</i> | 66. <i>Kakubha/Arjuna</i> |
| 7. <i>Katuki</i> | 22. <i>Asana</i> | 37. <i>Tinisha</i> | 52. <i>Siddharta</i> | 67. <i>Madhuka</i> |
| 8. <i>Chitraka</i> | 23. <i>Jeeraka</i> | 38. <i>Chandana</i> | 53. <i>Alavana</i> | 68. <i>Aswatha</i> |
| 9. <i>Chirabilva</i> | 24. <i>Shaaka</i> | 39. <i>Kuchandana</i> | 54. <i>Tapasavruksha</i> | 69. <i>Bhallataka</i> |
| 10. <i>Pippali</i> | 25. <i>Kantakari</i> | 40. <i>Moorva</i> | 55. <i>Madhooka</i> | 70. <i>Kadamba</i> |
| 11. <i>Maricha</i> | 26. <i>Badaree</i> | 41. <i>Devahva</i> | 56. <i>Kutannata</i> | 71. <i>Nyagrodha</i> |
| 12. <i>Shunti</i> | 27. <i>Vidanga</i> | 42. <i>Amalaki</i> | 57. <i>Tinduka</i> | 72. <i>Udumbara</i> |
| 13. <i>Varuna</i> | 28. <i>Kadali</i> | 43. <i>Vibheetaki</i> | 58. <i>Naktamala</i> | 73. <i>Kapeetana</i> |
| 14. <i>Shigru</i> | 29. <i>Shaalasara</i> | 44. <i>Hareetaki</i> | 59. <i>Rodhra/Lodhra</i> | 74. <i>Hingu</i> |
| 15. <i>Tarkari</i> | 30. <i>Surasayuga</i> | 45. <i>Arka</i> | 60. <i>Pippalimula</i> | 75. <i>Darbha</i> |

Gana have also been excluded from the analysis. The drug groups *Triphala*, *Trikatu*, *Brihatpanchamula* and drugs like *Vidanga*, *Nagara*, *Chitraka*, *Erandamula*, and *Haridra* are useful in the management of *Sthaulya*.^[38] They may have profound influence on reduction of bodyweight and dyslipidemia.

It is observed that drugs like *Guggulu* (*Commiphora wightii* (Am.) Bhandari.), *Vrukshamla* (*Garcinia indica* Choisy., *Garcinia cambogia* Desr.), *Atasi* (*Linum usitassimum* Linn.), *Lashuna* (*Allium sativum* Linn.) etc., promoted for controlling Obesity and Dyslipidemia in market are not found in classical *Ganas* analyzed in the paper.

The relationship of *Medodushti* is well established in the pathogenesis of *Santarpanoththa Vikaras* like *Sthaulya* and *Prameha*. Many of the herbs mentioned in *Medohara Ganas* possess hypolipidemic^[39-41] as well as hypoglycemic^[42-47] activities.

Conclusion

Drugs mentioned in each *Gana* of Ayurvedic classics have multifarious pharmacological properties. Some of the research studies carried out on these herbs confirmed both hypolipidemic and hypoglycemic activities. This observation is useful for designing new formulations to treat *Medodushti* and its complications. Drugs that are *Katu*, *Tikta*, *Kashaya* in *Rasa*, possessing *Ushna Virya*, and *Laghu Ruksha Guna* are largely responsible for *Medohara* and *Lekhaneeya* activities.

References

- Gallagher E J, Karnieli E, LeRoith D. The metabolic syndrome: From insulin resistance to obesity and diabetes. *Med Clin North Am* 2011;95:855.
- Ibidem. *Medical clinics of North America*: 931.
- Austin MA, Hokanson JE, Edwards KL. Hypertriglyceridemia as a cardiovascular risk factor. *Am J Cardiol* 1998;81:7B-12.
- Kruth HS. Lipoprotein Cholesterol and Atherosclerosis. *Curr Mol Med* 2001;1:633-53.
- Castelli W. Lipoproteins and cardiovascular disease: Biological basis and epidemiological studies. *Value Health* 1998;1:105-9.
- Agnivesha, Charaka, Dridhabala, Charaka Samhita, Sutra Sthana, Ashtaninditeeya Adhyaya, 21/3, Vaidya Jadavaji Trikamji Acharya, editor. 5th ed. Chaukhamba Sanskrit Sansthan, Varanasi; 2009; 116.
- Ibidem. Charaka Samhita, Ashtaninditeeya Adhyaya, 21/1;117.
- Chakrapanidutta, Commentator, Sushruta Samhita, Sutra Sthana, Doshadhatumalakshayavruddhi Vijnaniya Adhyaya, 15/4, editor. Vaidya Jadavaji Trikamji Acharya, 8th ed. Varanasi: Choukhambha Orientalia; 2005. p. 68.
- Agnivesha, Charaka, Dridhabala, Charaka samhita, Sutra Sthana, Deerghanjeeviteeya Adhyaya, 1/61, Vaidya Jadavaji Trikamji Acharya, editor, 5th ed. Chaukhamba Sanskrit Sansthan, Varanasi; 2009; 17.
- Sushruta, Sushruta Samhita, Sutra Sthana, Doshadhatumalakshayavruddhi Vijnaniya Adhyaya, 15/4, editor Vaidya Jadavaji Trikamji Acharya, 8th ed. Choukhambha Orientalia, Varanasi, 2005; 67.
- Agnivesha, Charaka, Dridhabala, Charaka samhita, Sutra Sthana, Ashtaninditeeya Adhyaya, 21/4, Vaidya Jadavaji Trikamji Acharya, editor, 5th ed. Chaukhamba Sanskrit Sansthan, Varanasi; 2009; 116.
- Ibidem. Charaka Samhita, Pramehanidanam, 4/51;215.
- Ibidem. Charaka Samhita, Ashtaninditeeya Adhyaya, 4/3;32.
- Sushruta, Sushruta Samhita, Sutra Sthana, Dravyasangrahaneyam Adhyaya, 38, editor Vaidya Jadavaji Trikamji Acharya, 8th. Choukhambha Orientalia, Varanasi, 2005; 164-8.
- Vagbhata, Ashtanga Samgraha, Sutra Sthana, Vividhadravayaganasangraha Adhyaya, 16, translated by Srikantha Murthy, 9th ed. Choukhambha Orientalia, Varanasi; 2005; 310.
- Vagbhata, Ashtanga Hrudaya, Sutra Sthana, Shodhanadiganasangraha Adhyaya, 15, editor: Anna Moreshwar Kunte, Krishnashastra Navare, Harishastri, 9th ed. Choukhambha Orientalia, Varanasi, 2005; 229.
- Dhanvantari Nighantu, editor: Sharma PV. 4th ed. Varanasi: Choukhambha Orientalia; 2005.
- Bhavamishra, Bhava Prakasha Nigantu, edited Chunekar K.C, Pandeya G.S. Varanasi: Choukhambha Bharati Academy; 2006.
- Vaidya Bapalal, Nighantu Adarsha. Vol. 1 and 2. Varanasi: Choukhambha Bharati Academy; 2005.
- Nishteswar K, Hemadri K, Dravyaguna Vijnana, 1st ed. Delhi: Choukhambha Sanskrit Prathishthan; 2010.
- Lucas Shanth Kumar, Dravyaguna Vijnana. Vol. 2, 1st ed. Varanasi: Choukhambha Visvabharati; 2008.
- Agnivesha, Charaka, Dridhabala, Charaka Samhita, Sutra Sthana, Ashtaninditeeya Adhyaya, 21/4, Vaidya Jadavaji Trikamji Acharya, editor. 5th ed. Chaukhamba Sanskrit Sansthan, Varanasi; 2009; 116.
- Ibidem Charaka Samhita, Langhanabrumhaneeya Adhyaya, 22/4;120.
- Ibidem Charaka Samhita, Langhanabrumhaneeya Adhyaya, 22/12-14;120.
- Sushruta, Sushruta Samhita, Sutra Sthana, Rasavisheshavijnaniyam Adhyaya, 42/10, editor Vaidya Jadavaji Trikamji Acharya, 8th ed. Choukhambha Orientalia, Varanasi, 2005; 185.
- Agnivesha, Charaka, Dridhabala, Charaka samhita, Sutra Sthana, Atreyabhadrakapya Adhyaya, 26/53-54, Vaidya Jadavaji Trikamji Acharya, editor, 5th ed. Chaukhamba Sanskrit Sansthan, Varanasi; 2009; 146.
- Ibidem. Charaka Samhita, Atreyabhadrakapya Adhyaya, 26/53;146.
- Ibidem. Charaka Samhita, Atreyabhadrakapya Adhyaya, 26/43;144.
- Ibidem. Charaka Samhita, Atreyabhadrakapya Adhyaya, 26/42;143.
- Ibidem. Charaka Samhita, Atreyabhadrakapya Adhyaya, 26/64;147.
- Sushruta, Sushruta Samhita, Sutra Sthana, Dravyasagunaveeryavipaka vijnaniyam Adhyaya, 40/10, editor Vaidya Jadavaji Trikamji Acharya, 8th ed. Choukhambha Orientalia, Varanasi, 2005; 179.
- Agnivesha, Charaka, Dridhabala, Charaka Samhita, Sutra Sthana, Deerghanjeeviteeya Adhyaya, 1/62, Vaidya Jadavaji Trikamji Acharya, editor, 5th ed. Chaukhamba Sanskrit Sansthan, Varanasi; 2009; 17.
- Sushruta, Sushruta Samhita, Sutra Sthana, Dravyasangrahaneyam Adhyaya, 389, editor Vaidya Jadavaji Trikamji Acharya, 8th ed. Choukhambha Orientalia, Varanasi, 2005; 164.
- Ibidem. Sushruta Samhita, Dravyasangrahaneyam Adhyaya, 381;5;165.
- Ibidem. Sushruta Samhita, Dravyasangrahaneyam Adhyaya, 381;9;168.
- Ibidem. Sushruta Samhita, Dravyasangrahaneyam Adhyaya, 381;9;165.
- Vagbhata, Ashtanga Hrudaya, Sutra Sthana, Shodhanadiganasangraha Adhyaya, 15/31, editor: Anna Moreshwar Kunte, Krishnashastra Navare, Harishastri, 9th ed. Choukhambha Orientalia, Varanasi, 2005; 237.
- Bhavamishra, Bhava Prakasha Nigantu, Sthaulyadhikara, 39, editor: Brahma Shankara Mishra. 11th ed., part 2. Varanasi: Choukhambha Bharati Academy; 2009. p. 406-7.
- Sukh Dev, A selection of prime Ayurvedic plant drugs Ancient-modern concordance. New Delhi: Anamaya Publishers; 2006. p. 91.
- Khare CP. *Indian Medicinal Plants*. Springer; 2007.
- Sabnis Mukund, Chemistry and pharmacology of Ayurvedic medicinal plants. Varanasi: Chaukhambha Amarabharati Prakashan; 2006.
- Semwal BC, Gupta J, Singh S, Yogesh K, Mahendra G. Antihyperglycemic activity of roots of *Zerberis aristata* D.C. in alloxan-induced diabetic rats. *Int J Green Pharm* 2009. p. 259-62.
- Nagulendran KR, Mahesh R, Hazeena V. Preventive role of *Cyperus rotundus* rhizomes extract on age associated changes in glucose and lipids. *Pharmacologyonline* 2007;2:318-25.
- Kiran VP, Neeraj SV, Rajendra TG, Vilas KM. Antidiabetic Evaluation of *Dalbergia Sissoo* against alloxan induced diabetes mellitus in wistar albino rats. *J Nat Prod Plant Resour* 2012;2:81-8.
- Punitha R, Manoharan S. Antihyperglycemic and antilipidperoxidative effects of *Pongamia pinnata* (Linn.) Pierre flowers in alloxan induced diabetic rats. *J Ethnopharmacol* 2006;105:39-46.
- Tatiana S, Carolini Z, Michele S, Larissa L, Juana V, Taciane C, et al. Hypoglycemic and hypolipidemic effect of leaves from *Syzygium cumini* (L.) Skeels, Myrtaceae, in diabetic rats, *Revista Brasileira de Farmacognosia*. *Braz J Pharmacogn* 2010;20:222-7.
- Thakur CP, Thakur B, Singh S, Sinha PK, Sinha SK. The Ayurvedic medicines Haritaki, Amla and Bahira reduce cholesterol-induced atherosclerosis in rabbits. *Int J Cardiol* 1988;21:167-75.

हिन्दी सारांश

आयुर्वेद ग्रन्थों में उल्लिखित मेदोहर वनौषधियाँ – एक समीक्षात्मक अध्ययन

हर्षिता कुमारी, रश्मी पुष्पन, के. निष्ठेश्वर

सभी विकसित और विकासशील देशों में आज के दिन हृदय रोग से पीड़ित रुग्णों की संख्या बढ़ती जा रही है। हृदयरोग एक मुख्यतः सन्तर्पणोत्थ विकार है जिसमें मेदोदुष्टि मुख्य निदान है। धमनीगत मेद संचय के कारण रक्त प्रवाहण में हुए अवरोध से इस व्याधि की सम्प्राप्ति पूर्ण होती है। अनेक उपयुक्त वनस्पति औषधियों का इस सम्प्राप्ति विघटन में सहायक रूप में उपयोग किया जाता है। उपरोक्त शोध पत्र में संहितोक्त गणों में दिए हुए मेदोहर एवं लेखनीय कर्मयुक्त द्रव्यों का समालोचनात्मक विश्लेषण किया गया है। उन सभी द्रव्यों में तिक्त रस, कटु विपाक, उष्ण वीर्य, लघु रुक्ष गुण और वातकफहर कर्मयुक्त द्रव्यों की संख्या प्रधान है। प्रस्तुत अध्ययन नवीन योगों की परिकल्पना में सहायक बनेगा।

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