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Case Study

THERAPEUTIC EVALUATION OF *VRIKSHAMLA* (*GARCINIA CAMBOGIA*) IN THE MANAGEMENT OF *STHAULYA* (OBESITY) W.S.R DYSLIPIDEMIA -A CASE REPORT

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ABSTRACT

Human community is in agony of grave metabolic disorder i.e., obesity/*Sthaulya roga*. It is inclined to become miserable because of the attenuated *Dosha* in the body. Sedentary lifestyle, hampered sexual life, extreme lassitude, will be prone to engulf the normalcy of an individual, which ultimately leads to decreased life span. It is widely recognized that obesity has emerged as an epidemic in developed nations. It continues to be an issue of great concern. In addition, we now face the emergence of obesity as a worldwide phenomenon, affecting affluent and ordinary group of class. Here in this case report the objective is to find out the efficacy of *Vrikshamla* (*Garcinia Cambogia*) in the management of *Sthaulya* (obesity). Materials: A 32 years old male patient K/C/O obesity since three year. Accustomed him with sedentary lifestyle which leads to a drastic gain in the weight. Through physical findings, BMI of a patient is 32.3 and by investigations the diagnosis led to *Sthaulya* as well as dyslipidemia. The study was assessed by both subjective and objective criteria. The treatment plan opted was Ayurveda internal medicine "*Vrikshamla* are best in the management of *Sthaulya*, selected as per criteria and examined by means of *Roga* and *Rogi Pariksha* methods. Administered *Vrikshamla* 2gm per day for 60 days and subjective as well as objective parameters were assessed based on before and after treatment. Discussion: Difference in the values of subjective and objective parameters, illustrate all the clinical observations in respect of incidences of *Nidana*, *Lakshana* and percentage of relief in the subject. Conclusion: In the present research work undertaken, *Vrikshamla* an herbal formulation prove its efficacy against dyslipidaemia.

INTRODUCTION

Lifestyle disorder contemplated under major health issues in the prevailing day. In the thick of lifestyle disorders obesity is acting as the prime factor in initiating the grave diseases like dyslipidaemia, diabetes mellitus, hypertension, coronary artery disorders and other associated disease like varicosity, osteoarthritis and other such disorders.

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Obesity is a major global health problem with challenges like multifactorial, etiological components, difficulty in challenging dietary habits, ignorance at initial stages of the disease leads to indelible complications.

Ayurveda based on the principle of *Tridoshas Vata*, *Pitta* and *Kapha*. These *Tridoshas* are the basic constituents at the physiological level in our system. These *Tridoshas* are basic metabolic elements constituting the body and mind of the living organisms. In this most advanced modernized era, the human gifted with lot of sophistication, luxuries but at the same time left with sedentary ways of life stress induced hectic. Unhealthy schedules these along with indiscriminate dietary habits, overeating, consuming processed high quality, high caloric foods and beverages propping into one's life are strongly

influencing the homeostasis leading to the exhibition of number of pathologies one amongst them being ***Sthaulya*** **(obesity)**

As we move into rapid modernization by providing almost luxury to our day today life, an average of person's unable to maintain individual his health by not adopting proper dietary and daily activities as a result of which mainly diseases such as *Sthaulya* (obesity) or *Medoroga* occur.

Classics of Ayurveda have recognized and established this phenomenon under the headings of the *Sthaulya* or *Medoroga*, dedicating chapters exclusively, elaborating various aspects of the same. The major risk related with *Sthaulya* (obesity) is that it favours various complicated pathologies like *Prameha, Kusta, Swasa, Kasa, Vataroga, Kamala* etc. It is well-established fact that obesity invites life-threatening complications like CAD, hypertension, diabetes mellitus, atherosclerosis, strokes, and so on. Obesity is a chronic disorder, if unchecked will reduce the life expectancy and contributes to the increasing rate of morbidity and mortality so it has wisely said, "Longer is the belt shorter is the life". Therefore, dyslipidemia can be correlated with the conditions of *Santarpana-janya-vikara*[1] as explained in our classics (Ch.Su.23). So for concept of dyslipidemia is the excess accumulation of lipids (especially plasma lipids) in the body, leading various acute and chronic condition. *"Prayaha-Snehatmedahapravardhayet" (M.Ni.34/3-7)*

Employing the authenticity, that excess *Sneha* is responsible factor in exuberance production of *Meda* and thus extremely produced *Meda* causing the obliteration of the other *Dhatu* that leads to *Medoroga Sthaulya lakshana*[2] in conjunction with *Upadrava*. Here the pathology that is elaborated in our classics and in contemporary science about lipids can create the parallel link.

Consequently, a need and relevance of proposed research study for dyslipidaemia is a common disorder of recent days, it affects about 25% of total population, mostly the people of developed countries as well as developing countries said to be suffering from this condition. Blood levels of cholesterol and triglycerides give valuable information for the assessment of errors in lipids-metabolism.

Diagnosis of dyslipidaemia was done by clinical and laboratory investigations. The prime aim is to bring back the high cholesterol level to normal levels, the LDL triglycerides and total cholesterol levels should be lowered and HDL level should be increased by diet control and drug therapy which has equal importance in controlling the disease. Impairment of various enzymes is the cause for dyslipidaemia.

Ayurveda acknowledges that the causes of all these conditions are *Agni-vikruti,* there is an involvement of *Jatharagni*, *Bhutagni* and *Dhatwagni*. In order to tackle the *Samprapti* of *Sthaulya* scientific approach is essential one and it's achieved by considering Ayurvedic line of management, which is comprehensive and rational.

Scrutinizing the literature shows the involvement of *Ama* and vitiation of the *Dhatusare* noticed. Analysing the properties of the drug *Vrikshamla* shows the *Karmagnata* of *Deepana*, *Amapachaniya*, *Kaphamedohara* and it also have the *Anulomana* properties. It also eliminates the accumulated *Malas* from the *Dhatus* and from the *Srotas* as well which cleanses the *Dhatus* and *Srotas*. In the pathology of *Sthaulya* (obesity), *Kapha* is main *Dosha* and *Meda* is main *Dushya*, while *Agnimandya* occurs at *Medodhatvagni* level. So the *Shamana aushadi* which is having the *Kaphamedohara* property and having the efficacy to rectify the function of *Medodhatvagnimandya* is preferred. So many preparations have been mentioned in our texts for the treatment of *Medodhatu Vridhi*. But keeping in mind easy availability, compatibility, *Vrikshamla* (*Garcinia Cambogia*) is preferred in this present case study, the drug that is selected *Vrikshamla* (*Garcinia Cambogia*), is indicated and having better efficacy in undertaking the *Sthaulya* or *Medovriddhi* or *Santarpana-Janya-Vikaras.*

Table 1: Therapeutic Modalities and Advocacy for *Sthaulya* (Obesity)

Principles	Advocacy
Nidanaparivarjana- Avoidance of etiological factors	Faulty lifestyle, faulty dietary habits
Ahara (Diet)	*Katu* (spicy), *Thiktha* (bitter), *Amla* (sour) *Kashaya rasa* (astringent, *Ushna* (hot) *Laghu* (light), *Ruksha* (dry)
Vihara- lifestyle, modification	*Vyayama* (exercises), *Asans* (yoga), *Shrama*, *Adhwa*, *Jagarana*, *Vyavaya* (sexual intercourse), *Chintha* etc.
Aushadhi- medical management	*Katu* (pungent), *Amla* (sour), *Thiktha* (bitter), *Kashaya rasa* (astringent)

Prevalence Rate of Obesity[3]

Obesity is most prevalent in middle age women are more prone to be obese than men. Most of the world population live in countries where overweight and obesity kills more people than underweight recent studies have reported than globally more than 1.9 billion adults are overweight and 650 million are obese.

Approximately 2.8 million deaths are reported as a result of being over-weight or obese, due to the consumption of energy dense food. That is unhealthy food and habit and sedentary lifestyle. Lack of health care service and financial support, the developing countries are facing high risk of obesity and their adverse consequence e.g. diabetes, ischemic heart disease (IHD).

In India more than 135 million individuals were affected by obesity. The prevalence of obesity in India varies due to age, gender, geographical-environment, socio economic status etc.

According to ICMR, INDIA B study 2015, prevalence rate of obesity and central obesity are varies from 11.8% to 13.3% and 16.9% to 36.3% respectively. In India abdominal obesity is one of the major risk factors for cardio vascular diseases.

Case Report

A 32 years old right handed male patient K/C/O obesity since 3 years came to our hospital JAIN AGM AMC VARUR (Karnataka) OPD- NO 2001477 on 2nd February 2020 with the complaint of drastic weight gain in past 3 years. He also complained of heaviness in the body, profuse sweating with bad odor, excessive thirst, excessive hunger, lethargy, difficulty in breathing by doing mild work and with general debility since 2-3 months. Before consulting to our hospital he has followed some change in diet and work out in gym which yielded no results and he took some allopathic medicine patient didn't get complete relief of the symptoms, later he consulted to our hospital.

Apart from this he didn't suffer from other medical conditions like hypertension, asthma, thyroid disorders etc. There was no any family history related to this condition.

Clinical Findings

Table 2: General Examination

Clinical Condition	Weak
Height	147.5cm
Weight	70kg
Skin	Normal
BP	128/88mmhg
BMI	32.3
Pulse	80/min
Respiratory rate	20/min
Temperature	37.3°C
Tongue	Mild coated
Pallor/cyanosis/clubbing/edema/ lymphadenopathy	Absent

Table 3: Systemic Examination

CNS	Well oriented person, conscious
CVS	Duel sound (s1 and s2) present
RS	B/L symmetrical, normal vesicular breathings are heard, no added sounds heard
GUT	Normal
GIT	Soft and no organomegaly
Locomotor System	Numbness and heaviness in RUL and LL, pain in RUL and LL

Table 4: *Ashtavidha Pariksha* [4-6]

Nadi examination of pulse)	80/min regular
Jihwa (examination of tongue)	Mild coated
Mala (examination of stool)	Twice per day with *Nirama mala*
Mutra (examination of urine)	2-3 times per day, normal colour
Shabdha (auscultation)	Normal
Sparsha (palpation)	Normal
Drik (inspection)	Normal
Akriti (examination of whole body)	*Madyama*

Investigations Done Before Treatment

1. HB = 11.4 gm%
2. Total count = 6200 cell/cumm
   Differential count
   Neutrophils = 60% Lymphocytes = 34%
   Eosinophils = 04% Monocytes = 02%
3. RBS = 131mg/dl
4. Lipid Profile Test
   - Serum cholesterol = 260mg/dl
   - Serum triglycerides = 180mg/dl
   - Serum HDL = 45mg/dl
   - Serum LDL = 180 mg/dl
5. Urine Examination Report
   - Albumin = NIL
   - Sugar = NIL
   - Urine micro = 3 to 4 pus cells/hpf

MATERIALS AND METHODS

Source of Data: A diagnosed case of *Sthaulya* (obesity) is selected from Kayachikitsa- OPD of Jain AGM Ayurvedic Medical College and Hospital, Varur, Karnataka.

Parameter of Assessment

1. Subjective Parameters
2. Objective Parameters

Subjective – Criteria- Clinical – Grading

Assessment of subjective parameters will be done by using symptom- Rating scale as following

Assessment of Subjective Parameter (Clinical Grading)

Assessment of Subjective Parameters

Assessment of *Kshudha Aadhikya* (Excessive hunger)

0	Becomes hungry after about 6hrs
1	Becomes hungry after about 4-5 hrs
2	Becomes hungry after about 3hrs
3	Becomes hungry after about 2-3hrs
4	Becomes hungry after about 2hrs

Assessment of *Sphik Sthana Udara Lambana*

0	Absence of *Chalatva*
1	Little visible movement (in the areas) after fast movement
2	Little visible movement (in the areas) even after moderate movement
3	Movement (in the areas) after mild movement
4	Movement (in the areas) even after changing posture

Assessment of *Pipasa aadhikya* (Excessive Thirst)

0	Drinks about 8-10 glasses of water daily
1	Drinks about 10-15 glasses of water daily
2	Drinks about 15-20 glasses of water daily
3	Drinks about 20-25 glasses of water daily
4	Unable to have a sound sleep for his thirst

Assessment of *Kshudra shwasa* (Breathlessness)

0	No shortness of breath
1	Mild dyspnoea after physical exertion relieved on rest
2	Moderate dyspnoea after physical exertion
3	Dyspnoea even after daily routine
4	Breathless even at rest

Assessment of *Swedaadhikya* (Excessive Sweating)

0	Normal perspiration
1	Mild perspiration after doing exertion
2	Increased perspiration after doing little exertion
3	Profuse perspiration after doing little exertion
4	Perspiration without exertion

Assessment of *Atinidra* (Excessive Sleep)

0	6-8 hrs or day sleep
1	8-10hrs or day sleep
2	10-12 hrs or day sleep
3	12-14 hrs or day sleep
4	>14 hrs or day sleep

Assessment of *Daurbalya* (General Debility)

0	Feeling of well being
1	Tired after doing strenuous physical activity
2	Tired after doing moderate physical activity but can do daily activity
3	Perform daily activity with difficulty
4	Extremely tired to carry out daily routine activity

Assessment of *Gaurava* (Heaviness of the Body)

0	No feeling of heaviness
1	Occasional feeling of heaviness
2	Continuous feeling of heaviness, but patient does usual work
3	Continuous feeling of heaviness which hampers usual work
4	Unable to do any work due to heaviness

Assessment of *Alasya* (Lethargy)

0	Normally active
1	Hesitate to start work but once started complete it
2	Start work but does not complete it
3	Doesn't have desire, works under compulsion
4	Doesn't start work

Objective Parameters

1. Body weight (kg)
2. Body mass index, BMI = kg/m2
3. Body circumference- measurements (at upper mid arm, chest, abdomen, waist, hip, lower mid thigh and mid calf).
4. Blood pressure
5. Lipid profile test a) serum ch – above – 200mg/dl b) serum tri – above – 165 mg/dl c) serum LDL above 150mg/dl d) serum HDL below 70mg/dl

Therapeutic Intervention

1. Tab. *Agnitundivati* 2 tid is given for 2 days as *Kosthashuddi*
2. *Swadishtavirechana churna* 2 tsp with warm water for 1 day
3. Cap. *Vrikshamla* 500mg 2bd before meal along with lukewarm water 60 days

Follow Up: follow up will done once in every 15days

Assessment Criteria

Assessment of subjective and objective parameters is done before and after the treatment i.e., on 0th day and 60th day respectively.

Table 5: Details of Treatment Plan

S.No	OPD	Date	Medication	Duration
1	OPD	2/2/20 to 3/2/20	Tab. *Agnitundi Vati* 500mg 1BD	2 days
2	OPD	4/2/20	*Swadishta Virechana* 2TSF - HS	1 day
3	OPD	5/2/22 to 19/2/20	Cap. *Vrikshamla* 500mg 2BD B/M – lukewarm water	15 days
4	OPD	20/2/20 to 5/3/20	Cap. *Vrikshamla* 500mg 2BD B/M – lukewarm water	15 days
5	OPD	6/3/20 to 20/3/20	Cap. *Vrikshamla* 500mg 2BD B/M – lukewarm water	15 days
6	OPD	21/3/20 to 5/4/20	Cap. *Vrikshamla* 500mg 2BD B/M – lukewarm water	15 days

Subjective Parameters

S.No	Symptoms	BT	AT	DIFF
1	*Kshudha Adhikya* (excessive hunger)	3	2	1
2	*Sphiksthanaudharalumbana*	3	2	1
3	*Pipasa Adhikya* (excessive thirst)	3	0	0
4	*Kshudra Swasa* (breathlessness)	2	0	0

5	*Sweda Adhikya* (excessive sweating)	3	2	1
6	*Ati Nidra* (excessive sleep)	2	0	0
7	*Dourbalya* (general debility)	2	0	0
8	*Gaurva* (heaviness of body)	3	0	0
9	*Alasya* (lethargy)	2	0	0

Objective Parameters

Weight (kg)			BMI (KG/M^2)			Serum-Cholesterol			Serum-Triglycerids			HDL			LDL		
						mg/dl	mg/dl	mg/dl	mg/dl	mg/dl	mg/dl	mg/dl	mg/dl	mg/dl	mg/dl	mg/dl	mg/dl
BT	AT	DIFF	BT	AT	DIFF	BT	AT	DIFF	BT	AT	DIFF	BT	AT	DIFF	BT	AT	DIFF
70	64	6	32.2	29.4	2.8	260	210	50	180	140	40	45	50	5	180	145	35

Chest (cm)			Abdomen (cm)			Waist (cm)			Waist-To-Hip Ratio			Mid-Arm (cm)			Mid-Thigh (cm)			Mid-Calf (cm)		
BT	AT	DIFF	BT	AT	DIFF	BT	AT	DIFF	BT	AT	DIFF	BT	AT	DIFF	BT	AT	DIFF	BT	AT	DIFF
80	75	5	70	65	5	65	70	5	0.86	0.90	0.04	27	24	3	50	45	5	27	25	2

Table 6: *Aharaja Pathya–Apathya* (diet do's and don'ts) for Obesity

***Pathya* (do's)**	***Apathya* (don'ts)**
Yava (barley), *Kodrava* (kodomillet)	*Godhuma* (wheat), *Navanna* (new harvested crops), *Shali* (rice)
Mudga (mung), *Rajamasha* (cowpeas), *Kulatha* (horse gram), *Chanaka* (chickpeas)	*Masha* (blackgram), *Tila* (sesamum)
Patola (wild snake guard)	*Madhuraphala* (sweet fruits)
Takra (buttermilk), *Madhu* (honey), *Ushnodhaka* (warm water), *Sarshapa Taila* (mustard oil), *Arista*, *Asava*, *Jeerna Madya* (alcohol and wine)	*Dugda* (milk), *Navaneeta* (butter), *Dadhi* (curd)
Rohitamatsya (Rohufish)	*Anupa* (marshy land animal meat), *Gramya* (arid land animal meat)

Table 7: *Viharaja Pathya–Apathya* (Routine do's and don'ts) for obesity

Pathya	***Apathya***
Srama (physical effort) *Jagarana* (awakening at night) *Vyayama* (exercise) *Achintana* (no stress)	*Divaswapna* (day sleep) *Avyayama* (non-practice of physical exercise) *Avyavaya* (avoid sexual indulgence) *Sukhashayya* (sedentary lifestyle) *Nityaharsha* (avoid inactive work) *Chintana* (stress) *Sheetalajalapana* (avoid cold water)

DISCUSSION

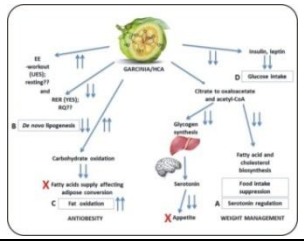
Probable mode of action of *Vrikshamla* (*Garcinia Cambiogia*)

In Ayurveda, the action of drug is determined on pharmaco dynamic factors as *Rasa-Guna-Veerya* and *Vipaka* along with certain specific properties called as *Prabhava* (*Karma*) *Vrikshamla* (extract). The extract (water based) of *Vrikshamla* fruits has *Amla, Katu* and *Madhura Rasa.* It also has *Laghu* and *Ushna Guna* with predominance of *Vayu* and *Agni Mahabhuta*. The *Deepana*, *Pachana* and *Kapha-Medohara* properties of *Vrikshamla* are also mentioned.

Due to its *Laghu* and *Ushana Guna* it digests the *Amasanchaya* and clears the *Srotorodha*. It contains mainly *Amla Rasa* which has the property of *Agnideepana* also predominance of *Vayu* and *Agni Mahabhuta* makes it *Laghu*.

Dravya having inherent tendency of *Agnisamdhukshana* (Ch.Su.-5/6). So, based on these factors it is quite acceptable that *Vrikshamla* digest the *Amasanchaya*, clears the *Srotorodha* and improves the status of *Jatharagni* and *Dhatvagni*. Moreover, modern science has also shown interest in *Vrikshamla*. Many studies have shown that intake of HCA present in *Kokam* reduces appetite, inhibits lipogeneses is and reduces body weight. The active component of *Garcinia Cambogia* is hydroxycitric acid (HCA). A compound that inhibits the enzyme ATP citratelyase, which involved in endogenous lipid biosynthesis. Hydroxycitric-acid also increases hepatic glycogen synthesis. Suppresses appetite and decrease body weight gain. Its acts on anti-hyperlipidaemia, anti-obesity.

Flowchart No.1 Showing the Illustrating Pharmacological Action of *Garcinia Cambogia*



Flowchart No.2 Probable mode of drug action of *Vrikshamla* (*Garcinia Cambogia*) in *Sthaulya* (Obesity)

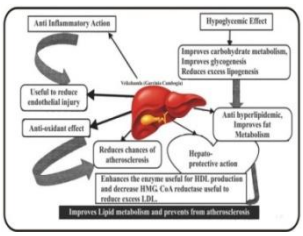


Fig No. 1 *Vrikshamla* Wet fruits

Fig No.2 *Vrikshamla* Dry fruits

CONCLUSION

The present review on anti-obesity drug *Vrikshamla* mentioned *Bhavaprakasha Nighantu*[7-8]. The management of *Sthaulya*/metabolic syndrome in conventional system of medicine is still not satisfactory and warranting newer strategies from other resources. It seems to explore an Ayurveda inspired line of management for tackling *Sthaulya* (obesity) or metabolic syndrome and preventing its life threatening complications. In the present case study *Vrikshamla* (*Garcinia Cambogia*) is selected for treatment of *Sthaulya* (obesity) because of its *Medohara* (reduce fat) cardio protective, anti-oxidant and lipid per oxidation, in habitation properties.

Decisively concluding that administrating *Vrikshamla* in *Sthaulya* exerts beneficial effect, as normalization of deranged lipid profile, body weight, BMI, the clinical symptoms subsided and unwanted effects are not detected at the end of therapy. Thus, the chosen measures are safe and cost effective and may be helpful to the patients of obesity, hypertension, CAD, metabolic syndrome etc. This review of literature may be further evaluated for clinical utility and planning of the treatment of *Sthaulya* (obesity)

REFERENCES

1. Charaka Samhita (Edited by Vidyotini Hindi Commentary by Kasinath Shastri) Author - Sri Agnivesha and Partisamskarana by Drudabala. Published by – Chaukambha Bharati Acadamy, Varanasi. 22nd Edition 1996.
2. Madhava Nidana (Vidyotini Hindi Commentary by Prof. Yadunandana Upadhyaya) Published by - Chaukumba Sanskrit Samsthana, Varanasi. 7th edition 1999
3. Ref – https://doi,org/10.1016/j,dsx,2018.08.032
4. Yoga Ratnakara (Vidyotini Commentary by Sri. Lakshmipathi Shasatri) Published by: Chaukumba Sanskrit Bhavan, Varanasi. 13th edition 1997
5. Sushruta Samhita (Edited by Kaviraj Ambikadutta Shastri) Author - Acharya Susrutha Published by – Chaukambha Bharati Acadamy, Varanasi. 11th edition 1998.
6. Astanga Hridaya (Edited by Pt. Bhigachary Harishastri Paradkar Vaidya) Author - Vagbhata Acharya Published by – Krishnadas Acadamy, Varanasi. 10th edition 1987
7. Bhavaprakasha (Vidyotini Hindi Commentary by Sri Harihar Prasad Pandya) Published by- Chaukumba Sanskrit Samsthana, Varanasi. 6th edition 1997.
8. Vrikshamla explained by Charakasamhita–sutra sthana 27th chapter & Bhava Prakash nighantu Amradiphalavarga explained in 6th chapter. 148, 149 Dhanvantari Nighantu Shatapushpadivarga 92, Kayadeva Nighantu Aushadhi varga-369, 370. Raja Nighantu Pippalyadi Varga 124.

9. Bhaishajya Ratnavali (Edited by- Sri. Rajeswardatta Shatri) Author- Govinda das Published by- Chaukumba Sanskrit Samsthana, Varanasi. 13th edition 1997.
10. Introduction to Kayachikitsa Author- C. Dwarkanath. Published by- Chaukhamba oriental, Varanasi. 3rd edition 1996.
11. Sharma P V Dravyaguna Vijnana Vol-II 5th chapter Page No. 337 Varanasi, Choukamba Bharathi Academy.
12. Davidson's Principles and Practice of Medicine. 17th Edition. Edited by- C. R.W. Edwards and I.A.D. Bouchier.
13. A.P.I. Text book of Medicine 6th Edition 1999 Edited by- G. S. Sainani
14. Harrisons Principles of Internal Medicine. 15th Edition Editors- Antony S. (Fauci and Eugene Braunwald)
15. Text book of Medical Physiology Edited by Guyton and Hall 9th edition 1996
16. Gami A S, Witt B J Howard D E; et al Metabolic syndrome and risk of incident cardio-vascular events and death: a systematic review and meta-analysis of longitudinal studies, J Am CollCordiol. 2007; 49, 403-414
17. Bentley-Lewis R. Koruda K. Seely EW. The metabolic syndrome in women. Nat Clin Pract Endocrinol Metab. Oct 2007; 3(10): 696-704.
18. Kolovou GD, Anagnostopoulou KK, Salpea KD, et al. The prevalence of metabolic syndrome in various populations. Am J Med Sci. Jun. 2007; 333(6): 362-71.
19. World Health Organization. "Definition. diagnosis and classification of metabolic syndrome and its complications: Report of a WHO Consultation. Part 1. Diagnosis and classification of metabolic syndrome". http://www. who.int/diabetes/publications/en/. Retrieved 2007-05-29.
20. Grundy SM. Cleeman JI, Daniels SR, et al. Diagnosis and management of the metabolic syndrome: an American Heart I Association/National Heart, Lung, and Blood Institute Scientific Statement. Circulation. Oct 25 2005; 112(17): 2735-52.
21. Jaspreet Singh, A. K. Pandey & R.H Singh. Prevention-Potential in Type 2 Diabetes Mellitus. Annals of Ayurvedic Medicine. January 2014, Vol. 3 (1): pages 62-63.
22. Dr. Ajai Kumar Pandey. 'Conceptual background of Obesity (Sthaulya/ Medoroga) & an approach for its management through Ayurveda' (pp.47-60); "Integrative Approach to Metabolic disorders (IAMD)", Published by MRF & SW. 1st ED., Varanasi, India (2013-2014), p.no. 47-60.
23. Masullo M, Bassarello C. Suzuki H, et al. Polyisoprenylated Benzophenones and an unusual Polyisoprenylated Tetracyclic Xanthone from the Fruits of Garcinia Cambogia, Journal of Agricultural and Food chemistry, 56, 2008, 5205-5210.
24. Sullivan A. C, Hamilton J. G, Miller 0. N and Wheatley V. R, Inhibition of lipogenesis in rat liver by hydroxycitrate. Archives of Biochemistry and Biophysics, (1977), 150(1). 183-190.
25. Soni MG, Burdock GA, Preuss HG, Stohs SJ, Ohia SE. Bagchi D:Safety assessment of -hydroxycitric acid and Super Citri Max, a novel calcium/potassium salt Food Chem

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