



A CLINICAL STUDY ON ASSESSMENT OF LEKHANA KARMA OF LAUHA BHASMA IN STHOULYA

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ABSTRACT

Karma is defined in Ayurveda as the effort to achieve something. Ayurvedic texts have delineated various pharmacological actions (Karma) of drugs, one is Lekhana. Lekhana Karma is the one which scrapes out the Dosha from the body. It is by and large employed in Kapha-Medo Dusti conditions. Drugs possessing Lekhana Karma are predominant of Agni and Vayu Mahabhuta, having Ruksha Guna. One of the diseases where Kapha-Medo Dusti takes place is Sthoulya which is described in the framework of Santarpanjanya Vyadhis. In Sthoulya, Srotovarodha occurs leading to malformation of Dhatus and to remove obstruction in Srotas, drugs having property of Lekhana can be employed. Lauha Bhasma which has the property of Lekhana, Guru Guna, Tikta-Kashaya Rasa and Sheeta Veerya can be employed in conditions of Sthoulya. Tikta and Kashaya Rasa do the Soshana of Kleda, Meda, Sweda, Mutra and Pureesha thus undertaking Karshana/Lekhana. The study was conducted to assess the Lekhana karma of Lauha Bhasma in Sthoulya based on the principle of Karma Siddhanta. Lauha Bhasma has significant effect in improving HDL, RBC, ESR, Ayathasahapachaya, Excess sweating, Dyspnea, reducing Snigdghata in Oshtha and Pureesha because of Lekhana Karma.

Key Words: Lekhana, Sthoulya, Lauha Bhasma, Kapha-Medo Dusti

INTRODUCTION

Karma in Ayurveda has been broadly defined in varied sense. It differs from one context to other with diverse intention. It has been mentioned as one of the Shat Padartha in Ayurveda, which resides in Dravya in Samavayi Sambandha with Guna¹.

Whatever be the treatment modality it does not go beyond Shadupakrama i.e. Langhana, Bruhmana, Rukshana, Snehana, Stambana and Swedana². These six again can be grouped into Santarpana and Apatarpana. Vyadhi arising out of Santarpana should be encountered by Apatarpana Chikitsa³.

Regarding pharmacological actions, Sushruta enlisted various Karma ranging from Adhobhagahara, Urdhvabhagahara, Ubhayabhagahara, Samsodhana, Samshamana, Sangrahi, Agnideepana, Peedana and Lekhana to name a few⁴.

Lekhana is Apatarpana Karma and it is similar to Langhana and opposite to Bruhmana as it reduces or scrapes away unwanted Dhatus (tissues) and Malas (metabolic wastes)⁵, in addition to Vishoshana of Kapha and Medas⁶. Lekhana Dravyas are predominant of Agni and Vayu Mahabhuta, having Katu-Tikta and Kashaya Rasa, Ruksha-Laghu Guna⁷.

Various Santarpanjanya Vyadhis are enlisted in Charaka Samhita and treatment for them advocated is Apatarpana Chikitsa. Sthoulya is one such Santarpanjanya Vyadhi for which Apatarpana Chikitsa has been stated⁸.

In Sthoulya, Rasa Dusti⁹ along with Meda Dusti¹⁰ takes place. Also

by Ashraya-Ashrayee Bhava, Meda serves as Ashraya for Kapha, the Ashrayee¹¹. In Sthoulya, Dusti of Kapha and Meda takes place which can be countered with the drug which has Kapha-Medohara action.

Lauha Bhasma s Kapha-Medohara, as it is possessing Tikta-Kashaya Rasa¹², which does Soshana of Kleda, Meda, Sweda, Mutra, Pureesha, Sleshma in the body thus doing Karshana¹³.

MATERIALS AND METHODS

A Simple random sampling method was employed and the subjects were distributed in two groups (Study and Control). Study group were administered Lauha Bhasma (Triphala Kwatha bhavit 7 times) and control group were given Triphala Churna. Raw materials for preparing Kashaya were procured from Department of Rasa Shastra and Bhaisajya Kalpana for preparing Kwatha of Triphala. Lauha Bhasma was procured from Sri Dharmasthala Manjunatheshwara Ayurvedic Pharmacy, Kuttapady, Udupi, Karnataka, and was triturated 7 times with Triphala Kasahya.

Lauha Bhasma was standardised from Sri Dharmasthala Manjunatheshwara Centre for Research in Ayurveda and Allied Sciences (Ayush Centre for Excellence and Recognized SIROs by DSIR), Laxminarayana Nagar, P.O. Kuthpady, UDUPI, Karnataka. Patients complaining of one or more of the symptoms listed below were selected for the study.

Anuthsaha
Atisweda
Snigdghata
Guru Gatrata

Kapha Meda Vriddhi Lakshana

Patients having secondary obesity as seen in Cushing Syndrome, Hypothyroidism etc., with history of cardiac disorders and other

systemic disorders, in whom obesity is observed since birth, whose BMI is below 25 and above 30 and who are on any other medications for same problem were excluded from the study.

Table 1: Assessment Criteria

Subjective criteria's	Grading	BT	AT
1. Ayata utsahaupachaya :			
a. Unimpaired utsaha	Grade 0		
b. Anutsaha but do not hamper routine work.	Grade 1		
c. Anutsaha which hamper routine work.	Grade 2		
d. Anutsaha which restricts routine work.	Grade 3		
2. Excess sweating :			
a. No sweating	Grade 0		
b. Sweating after moderate work	Grade 1		
c. Sweating after mild work	Grade 2		
d. Sweating even in resting condition	Grade 3		
3. Dyspnea on exertion:			
a. Absent	Grade 0		
b. Dyspnea on moderate work	Grade 1		
c. Dyspnea on mild work	Grade 2		
d. Dyspnea even at rest	Grade 3		
4. Excessive sleep:			
a. Sleep of 6-7 hours per day	Grade 0		
b. Sleep of 8 hours per day	Grade 1		
c. Sleep of 10 hours per day	Grade 2		
d. Sleep of more than 10 hours per day	Grade 3		
5. Excessive hunger:			
a. Feels hunger at next Annakala only	Grade 0		
b. Feels hunger for once in between Anna kala	Grade 1		
c. Feels hunger for more than twice in between Anna kala	Grade 2		
d. Feels hunger always	Grade 3		
6. Excessive thirst:			
a. Normal thirst up to 2 litres	Grade 0		
b. More than 2 litres	Grade 1		
c. More than three litres	Grade 2		
d. More than four litres	Grade 3		
7. Decreased physical exercises:			
a. Can do routine exercises	Grade 0		
b. Can do moderate exercise with difficulty	Grade 1		
c. Can do only mild exercises with difficulty	Grade 2		
d. Cannot even do mild exercises	Grade 3		
8. Feeling of heaviness:			
a. No heaviness in body	Grade 0		
b. Feels heaviness but it doesn't hampers routine work	Grade 1		
c. Feels heaviness which hampers routine work	Grade 2		
d. Feels heaviness which restricts routine work	Grade 3		
9. Flabbiness of body:			
a. No flabbiness in body	Grade 0		
b. Flabbiness in one anatomical region	Grade 1		
c. Flabbiness in more than one region	Grade 2		
d. Generalized flabbiness in body	Grade 3		
10. Fatigue:			
a. No fatigue.	Grade 0		
b. Fatigue on moderate work.	Grade 1		
c. Fatigue on mild work.	Grade 2		
d. Fatigue even on no work.	Grade 3		
11. Dourgandhya:			
a. Not present	Grade 0		
b. Felt by patient	Grade 1		
c. Felt by others	Grade 2		
d. Felt by patient & others	Grade 3		

PLAN OF THE STUDY**Pre Study**

The patients were examined through a case-proforma to assess their Ahara, Vihara etc. Thereafter the subjects were asked to fill the patient assessment form by their own. Only diagnosed patients of Sthoulya were administered the drug Cap Lauha Bhasma 250mg (Triphala Kwatha Bhavita) in Study group and Triphala tablets 500mg in control group.

During The Study

The medicine was dispensed in three courses for which the patients of both groups were asked to report on 11th day and 21st day.

Post Study

The patients were asked to report to the researcher at the end of the course of one-month treatment and thereafter again assessed for subjective and objective parameters. Case proforma was given to assess post study subjective parameters. The blood sample was again collected from the subjects of both the groups to assess objective parameters.

Table 2: Assessment of Anthropometric Results (Control Group)

S.No	Anthropometric	Negative Rank	Positive Rank	Ties	Significance	Remarks
1	Weight	21	0	0	.001	S
2	BMI	21	0	0	.001	S
3	Abd Circumference	17	0	4	.001	S
4	Waist	20	0	1	.001	S
5	Hip	21	0	0	.001	S
6	Waist-Hip Ratio	8	2	11	.032	S

Table 3: Assessment of Anthropometric Results (Study Group)

S.No	Anthropometric	Negative Rank	Positive Rank	Ties	Significance	Remarks
1	Weight	20	0	0	.001	S
2	BMI	20	0	0	.001	S
3	Abd Circumference	20	0	0	.001	S
4	Waist	20	0	0	.001	S
5	Hip	19	0	1	.001	S
6	Waist-Hip Ratio	10	2	8	.059	NS

Table 4: Assessment of Anthropometric Results (Between the Groups)

S.No	Anthropometric	Control (Mean)	Study(Mean)	Significance	Interpretation
1	Weight BT	73.262	72.860	.804	NS
2	Weight AT	69.929	68.730	.584	NS
3	BMI BT	27.909	27.550	.498	NS
4	BMI AT	26.647	25.933	.285	NS
5	Abd Circumference BT	94.714	93.400	.480	NS
6	Abd Circumference AT	92.905	90.550	.381	NS
7	Waist Circumference BT	98.452	100.925	.573	NS
8	Waist Circumference AT	96.262	96.001	.979	NS
9	Hip Circumference BT	103.119	103.475	.564	NS
10	Hip Circumference AT	101.095	100.750	.302	NS
11	WH Ratio BT	0.9552	0.9720	.470	NS
12	WH Ratio AT	0.9476	0.9675	.227	NS

Table 5: Assessment of Lipid Profiles Results (Control Group)

S. No	Lipid Profile	Negative Rank	Positive Rank	Ties	Significance	Remarks
1	Serum Cholesterol	20	1	0	.001	S
2	Triglyceride	21	0	0	.001	S
3	HDL	4	17	0	.003	S
4	LDL	19	2	0	.001	S
5	VLDL	21	0	0	.001	S

Table 6: Assessment of Lipid Profiles Results (Study Group)

S. No	Lipid Profile	Negative Rank	Positive Rank	Ties	Significance	Remarks
1	Serum Cholesterol	17	3	0	.003	S
2	Triglyceride	19	1	0	.001	S
3	HDL	7	13	0	.296	NS
4	LDL	18	2	0	.008	S
5	VLDL	18	2	0	.006	S

Table 7: Assessment of Lipid Profiles Results (Between the Groups)

S.No	Lipid Profile	Control (Mean)	Study (Mean)	Significance	Interpretation
1	Serum Cholesterol BT	196.495	195.240	.865	NS
2	Serum Cholesterol AT	186.124	181.980	.557	NS
3	Triglyceride BT	181.948	195.125	.620	NS
4	Triglyceride AT	168.890	168.245	.657	NS
5	HDL BT	50.724	46.665	.028	S
6	HDL AT	53.714	48.230	.006	S
7	LDL BT	112.762	113.770	.814	NS
8	LDL AT	104.729	100.570	.489	NS
9	VLDL BT	37.133	38.995	.958	NS
10	VLDL AT	32.624	34.405	.927	NS

Table 8: Assessment of Haematological Profile Results (Control Group)

S. No	Haematological	Negative Rank	Positive Rank	Ties	Significance	Remarks
1	Hb	16	4	1	.115	NS
2	RBC	11	10	0	.626	NS
3	WBC	7	14	0	.054	NS
4	ESR	16	4	1	.001	S
5	FBS	19	2	0	.002	S

Table 9: Assessment of Haematological Profile Results (Study group)

S. No	Haematological	Negative Rank	Positive Rank	Ties	Significance	Remarks
1	Hb	5	11	4	.065	NS
2	RBC	6	13	1	.519	NS
3	WBC	9	10	1	.825	NS
4	ESR	5	12	3	.154	NS
5	FBS	10	9	1	.872	NS

Table 10: Assessment of Haematological Parameters (Between the Groups)

S.No	Haematological	Control (Mean)	Study (Mean)	Significance	Interpretation
1	Hb BT	12.695	12.505	.615	NS
2	Hb AT	12.971	12.953	.807	NS
3	RBC BT	4.884	4.576	.025	S
4	RBC AT	4.846	4.574	.015	S
5	WBC BT	7209.52	7257.89	.839	NS
6	WBC AT	6757.14	7326.32	.278	NS
7	ESR BT	16.48	12.89	.503	NS
8	ESR AT	10.86	17.67	.045	S
9	FBS BT	87.133	87.668	.786	NS
10	FBS AT	81.229	87.389	.065	NS

Table 11: Assessment of Subjective Parameters (Control group)

SNo	Subjective	Negative Rank	Positive Rank	Ties	Significance	Remarks
1	Ayathautsahaupachaya	20	0	1	.001	S
2	Sweating	20	0	1	.001	S
3	Dyspnea	21	0	0	.001	S
4	Excess Sleep	16	0	5	.001	S
5	Hunger	17	0	4	.001	S
6	Thirst	16	0	5	.001	S
7	Decreased Exercise	21	0	0	.001	S
8	Heaviness	19	0	2	.001	S
9	Flabbiness	12	1	8	.003	S
10	Fatigue	20	0	1	.001	S
11	Dourgandhya	15	1	5	.001	S
12	Lalata	13	0	8	.001	S
13	Kesha	18	0	3	.001	S
14	Chakshu	17	0	4	.001	S
15	Oshta	10	0	11	.002	S
16	Nasagata Snigdha	13	0	8	.001	S
17	Karnagata Snigdha	13	0	8	.014	S
18	Gandapradesha	6	0	15	.014	S
19	Vakshyaudara	11	0	10	.001	S
20	Pureesha	10	0	11	.002	S
21	Mala Pravrutti	14	0	7	.001	S
22	Mutra Pravrutti	4	0	17	.046	S

Table 12: Assessment of Subjective Parameters (Study group)

SNo	Subjective	Negative Rank	Positive Rank	Ties	Significance	Remarks
1	Ayathautsahaupachaya	17	0	3	.001	S
2	Sweating	19	0	1	.001	S
3	Dyspnoea	19	0	1	.001	S
4	Excess Sleep	13	0	7	.001	S
5	Hunger	14	0	6	.001	S
6	Thirst	12	0	8	.001	S
7	Decreased Exercise	14	0	6	.001	S
8	Heaviness	17	0	3	.001	S
9	Flabbiness	15	0	5	.001	S
10	Fatigue	18	0	2	.001	S
11	Dourgandhya	12	0	8	.002	S
12	Lalata	13	0	7	.001	S
13	Kesha	19	0	1	.001	S
14	Chakshu	18	0	2	.001	S
15	Oshta	14	0	6	.001	S
16	Nasagata Snigdhata	11	0	9	.002	S
17	Karnagata Snigdhata	13	0	7	.001	S
18	Gandapradesha	9	0	11	.014	S
19	Vakshyaudara	12	0	8	.001	S
20	Pureesha	11	0	9	.002	S
21	Mala Pravrutti	7	0	13	.001	S
22	Mutra Pravrutti	9	0	11	.046	S

Table 13: Assessment of Subjective Parameters (Between the Groups)

S.No	Subjective Parameters	Significance	Interpretation
1	Ayathautsahaupachaya BT	.318	NS
2	Ayathautsahaupachaya AT	.001	S
3	Sweating BT	.681	NS
4	Sweating AT	.043	S
5	Dyspnea BT	.948	NS
6	Dyspnea AT	.007	S
7	Excess Sleep BT	.412	NS
8	Excess Sleep AT	.233	NS
9	Hunger BT	.197	NS
10	Hunger AT	.528	NS
11	Thirst BT	.734	NS
12	Thirst AT	.278	NS
13	Decreased Exercise BT	.253	NS
14	Decreased Exercise AT	.349	NS
15	Heaviness BT	.344	NS
16	Heaviness AT	.717	NS
17	Flabbiness BT	.386	NS
18	Flabbiness AT	.420	NS
19	Fatigue BT	.416	NS
20	Fatigue AT	.734	NS
21	Dourgandhya BT	.912	NS
22	Dourgandhya AT	.246	NS
23	Lalata BT	.897	NS
24	Lalata AT	.756	NS
25	Kesha BT	.252	NS
26	Kesha AT	.662	NS
27	Chakshu BT	.366	NS
28	Chakshu AT	.756	NS
29	Oshta BT	.849	NS
30	Oshta AT	.005	S
31	Nasagata Snigdhata BT	.360	NS
32	Nasagata Snigdhata AT	.548	NS
33	KarnagataSnigdhata BT	.569	NS
34	KarnagataSnigdhata AT	.540	NS
35	Gandapradesha BT	.458	NS
36	Gandapradesha AT	.839	NS
37	Vakshyaudara BT	.857	NS
38	Vakshyaudara AT	.418	NS
39	Pureesha BT	.932	NS
40	Pureesha AT	.021	S
41	Mala Pravrutti BT	.135	NS
42	Mala Pravrutti AT	.583	NS
43	Mutra Pravrutti BT	.078	NS
44	Mutra Pravrutti AT	1.001	NS

RESULTS AND DISCUSSION

Analysis of the data was done with SPSS version 16 software. Analysis within the groups showed that both the drugs i.e. Triphala churna and Lauha Bhasma, exhibited Lekhana property and when compared between the groups HDL, ESR, FBS, Ayathautasahapchaya, excessive sweating, dyspnoea showed significant results in Study (Lauha Bhasma) group.

Each and every study, may be conceptual or clinical, is always required to be proved on the basis of logic, fruitful reasoning, supported by achieved practical data as Pramana and then only it can be taken as a principle of that science.

“Shastrasahita tarka saadhanaama”¹⁴

The importance of discussion in a research work is that the concept should be proven by it. Charaka quoted in Vimanasthana “Hetubhischa saadhiyatva”¹⁵ that is, without discussion any conclusion drawn becomes useless, unless and until strongly supported by proper reasoning. Beginning from the hypothesis to observation made on obtained result, each should be supported by proper logic.

This usually would help in achieving the main objective of research which is to verify the truth of the old concept. Hence discussion is most important part of research which is being presented here.

Weight

Lauha Bhasma and Triphala both possessed Ruksha Guna and Kashaya Rasa which facilitated Soshana of Kleda, Meda, Sleshma, resulting in weight loss. Tikta and Kashaya Rasa of Lauha Bhasma have the property of Soshana¹⁶, it was more effective in reducing weight.

BMI

BMI is dependent on weight and in both group there was decrease in weight in respective groups but between the groups was not significant.

Abdominal, Waist and Hip Circumference

Results suggest that reduction in weight is generalised and not specific to any one part of the body.

Lipid Profile

Lauha Bhasma due to Deepana property has facilitated the digestion of lipids encouraging the formation of good cholesterol and Ruksha Guna has reduced the RasaRaktagata Sneha (Hyperlipidemia)¹⁷.

Haematological Parameters

All parameters except ESR had no significant improvement which cannot be commented upon as it may vary because of time, place and kind of food taken. Lauha Bhasma showed significant improvement in ESR, which may be due to proven anti inflammatory action.

Subjective Parameters

All these features (Ayathautasahapachaya, Excessive sweating, Dyspnoea) are due to Soukumarata of Medo Dhatu therefore Soshana of Kleda from Meda, Sveda and Sleshma by Kashaya Rasa and Ruksha Guna resulted in significant improvement. The parameters (excessive sleep, excessive hunger, excessive thirst,

decreased exercise) showed improvement in both the groups, it may be because the Kashaya Rasa and Ruksha Guna reduced Medo Dhatu Avarana significantly.

The improvement of Medo Dhathvagni by both Triphala and Lauha Bhasma resulted in significant improvement in Snigdghata of Lalata.

The parameters (heaviness, fatigue, Dourgandhya) showed significant improvement because the Parthiva Guna of the drugs acted on Soukumara Guna of Medas.

The significant improvement in snigdghata in Kesa, Chakshu, Ostha, Nasagata, Karnagata, Gandapradeshgata, Vakshyaudara, Malapravrutti, Mutrapravrutti in both the groups is due to the fact that both drugs have Kashaya Rasa and Ruksha Guna, which has reduced the Snigdghata which is the one of the Guna of Meda.

The decrease in Snigdghata in Pureesha within the groups as well as between the groups as both drugs did Soshana of Sveda, Kleda, Meda, Mutra and Mala because of their Guna¹⁸.

CONCLUSION

The present study was carried out to establish the concept of Lekhana in the conditions where Kapha and Meda vitiation has taken place. Various parameters have improved in both the groups which establish the fact that both drugs have Lekhana property. Lauha Bhasma has significant effect in improving HDL ($p<.050$), RBC ($<.050$), ESR ($p<.050$) Ayathautsahaupachaya ($p<.001$), Excess sweating ($p<.050$), Dyspnea ($p<.050$), Snigdghata in Oshta ($p<.050$) and Pureesha ($p<.050$). Tikta Rasa, Laghu and Ruksha Guna reduced Kapha-Medodushti and Deepaniya Guna of Lauha Bhasma improved HDL. Removal of Avarodha of Raktvaha Srotas by Lauha Bhasma resulted in improvement of RBC by facilitation of proper nourishment of Rakta Dhatu. Sothahara property of Lauha Bhasma improved ESR. Soshana of Kleda from Meda, Sveda and Sleshma by Kashaya Rasa and Ruksha Guna resulted in significant improvement in Ayathautsahaupachaya by decreasing Soukumarata. Rusksha Guna of Lauha Bhasma caused Soshana of excess Kleda thus decreasing excess Sweating. Kapha-Medohara property of Ruksha Guna facilitated Karshana thus improving Dyspnea. Sheeta virya, Tikta-Kashaya Rasa increases Ruksha Guna resulting in Soshana of Kleda thereby improving Snigdghata in Oshta and Pureesha. Guru cha Atarpana is the line of treatment in Sthoulya and Lauha Bhasma being Guru and Ruksha exhibited the improvement in various parameters. Lekhana was appreciated because of Ruksha Guna and Tikta-Kashaya Rasa which do Atarpana.

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REFERENCES

1. Acharya YT. Caraka Samhita of Agnivesa. 5th ed. Varanasi: Choukhambha Prakashan; reprint 2011. p.7
2. Acharya YT. Caraka Samhita of Agnivesa. 5th ed. Varanasi: Choukhambha Prakashan; reprint 2011. p.122
3. Acharya YT. Caraka Samhita of Agnivesa. 5th ed. Varanasi: Choukhambha Prakashan; reprint 2011. p.123
4. Acharya YT. Sushruta Samhita of Sushruta. 5th ed. Varanasi: Choukhambha Surabharti Prakashan; reprint 2007. p.175
5. Srivastava S. Sharagadhara Samhita of Sharngadhara. 2nd ed. Varanasi: Choukhambha Orientalia; reprint 1998. p.32
6. Acharya YT. Dalhana on Sushruta Samhita of Sushruta. 5th ed. Varanasi: Choukhambha Surabharti Prakashan; reprint 2007.

- p.183
7. Acharya YT. Dalhana on Sushruta Samhita of Sushruta. 5th ed. Varanasi: Choukhambha Surabharti Prakashan; reprint 2007. p.182
 8. Acharya YT. Sushruta Samhita of Sushruta. 5th ed. Varanasi: Choukhambha Surabharti Prakashan; reprint 2007. p.73
 9. Mitra J. Astanga Samgraha of Vrddha Vagbhata. 1st ed. Varanasi: Choukhambha Krishnadas Academy; reprint 2006. p.184
 10. Acharya YT. Dalhana on Sushruta Samhita of Sushruta. 5th ed. Varanasi: Choukhambha Surabharti Prakashan; reprint 2007. p.74
 11. Kunte AM. Astangahrdaya of Vagbhata. Varanasi: Choukhambha Surabharti Prakashan; reprint 2011. p.186
 12. Shastri Kashinath. Rasa Tarangini of Sadananda Sharma. 11th ed. Varanasi: Motilal Banarasidas; reprint 2000. p.504
 13. Acharya YT. Caraka Samhita of Agnivesa. 5th ed. Varanasi: Choukhambha Prakashan; reprint 2011. p.144-145
 14. Acharya YT. Caraka Samhita of Agnivesa. 5th ed. Varanasi: Choukhambha Prakashan; reprint 2011. p.132
 15. Acharya YT. Caraka Samhita of Agnivesa. 5th ed. Varanasi: Choukhambha Prakashan; reprint 2011. p.238
 16. Acharya YT. Caraka Samhita of Agnivesa. 5th ed. Varanasi: Choukhambha Prakashan; reprint 2011. p.144
 17. Sangram Mishra, Dwivedi RR. Fundamental and applied study of Snigdha and Ruksha Gunas with special reference to Rasa-Raktagata Sneha (Hyperlipidemia), PhD thesis Jamnagar: Gujarat Ayurved University Jamnagar: 2008.p.241
 18. Acharya YT. Caraka Samhita of Agnivesa. 5th ed. Varanasi: Choukhambha Prakashan; reprint 2011. p.145

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