Published online in http://ijam. co. in

ISSN: 0976-5921

Efficacy of Shunthi-Lodhra Churna in the Management of Asrigdara (DUB)

Research Article

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Abstract

Objectives: The most common bleeding disorders in women are described as *Asrigdara* in Ayurveda, characterized by *Pradirana* (excessive excretion) of *Raja* (menstrual blood). It can be correlated to 'Dysfunctional Uterine Bleeding' in modern medicine. In modern medicine hormonal therapy, anti-prostaglandins & anti-fibrinolytic agents have not proven their definitive efficacy in spite of high costs; their side effects have led to hormonal imbalances. Methods: In order to overcome the above abnormalities, we conducted a clinical trial for 90 days on 30 patients of age group 18-45 yrs. We administered *Shunthi Churna* (2 gms.) and *Lodhra Churna* (3gms) mixed with *Sharkara* (5 gms.) i.e. total (10gms) thrice daily with cold water, after food. Two observations were taken, 1st after 45 days of treatment and the 2nd one after completion of treatment on various parameters like amount and duration of blood loss, inter-menstrual period, passage of clots and pain during menstruation. Results: Based on the parameters studied, we observed 60% of patients improved moderately, 36.7% showed mild-improvement, 3.3% showed marked-improvement in different symptoms. The results are highly significant on most parameters. Conclusion: Drug formulation *Shunthi Churna* and *Lodhra Churna* with *Sharkara*, proved to be effective in treating most of the symptoms of *Asrigdara*..

Keywords: *Asrigdara*, Dysfunctional Uterine Bleeding, *Shunthi Churna, Lodhra Churna*.

Introduction

Dysfunctional uterine bleeding (DUB) is defined as a state of excessive abnormal uterine bleeding without any clinically detectable organic pelvic pathology. The abnormality may be in frequency, duration or amount or combination of all (1). Normal menstrual cycle varies from 21-35 days with the bleeding phase of 4-6 days with an average loss of 35-45 ml of blood (2). Abnormal menstrual cycle is defined as any deviation from the aforesaid. The disease *Asrigdara* explained in Ayurveda may be closely co-related with the condition Dysfunctional uterine bleeding of contemporary medical science.

According to *Acharya Charaka*, if the menstrual cycle turns to be abnormal due to *Pradirana* (excessive secretion) of *Raja*, it is termed as *Pradara* (3).

According to *Acharya Sushruta*, excessive and prolonged bleeding during menstruation or even in inter-menstrual period, different from the features of normal menstrual blood is called **"***Asrigdara"* (4).

In women it is a significant healthcare problem in the developed world (5) due to the increased stress. Between 25 - 58% of women participating in the WHO study reported having excessive bleeding per vaginum in the past three months (6, 7). One in 20 women aged 30-40 consults their general practitioner every year complaining of heavy uterine bleeding (8). This potentially puts them under distressing condition in their social work place.

The *Nidanas* are responsible for *Asrigdara* as described by *Charaka* are mostly *Pitta Vardhaka* (9). Without the influence of *Vata Dosha*, *Yoni* never gets vitiated; so all *Yoni Vyapads* & *Artava Vyapads* are because of *Vata Dosha* (10). *Acharya Charaka* also explained it as a symptom of *Pittavrita Apanavayu* (11).

Various treatments like hormonal therapy, anti-prostaglandins & anti-fibrinolytic agents are available in modern health science. Many side effects have been observed because of the medication and hysterectomy lead to hormonal imbalance and psychological upset in young fertile women. So keeping this in mind we took Ayurvedic drug trial, which are non-hormonal and safe that could provide effective alternative for *Asrigdara.*

We have selected '*Shunthi-Lodhra Churna* with *Sharkara*' which has been mentioned in "*Yoga Ratnakar*" due to its contents, cost effectiveness and disease healing properties (12).

The combinatorial formulation selected for our treatment based on the following properties. *Shunthi* has property of *Kaphavata Nashana* and *Shula Prashamana*

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Published online in http://ijam. co. in

ISSN: 0976-5921

International Journal of Ayurvedic Medicine, 2019, 10(1), 39-46

(13), *Lodhra* has *Rakta Sthambhana* and *Garbhasaya Shothahara* properties (14) and *Sharkara* for its *Vata, Pitta*, and *Rakta Doshahara* properties (15). So here we attempted to evaluate the efficacy of *Shunthi-Lodhra Churna* with *Sharkara* in the management of *Asrigdara* w.s.r. DUB.

Objectives of the study

- To evaluate the effect of *Shunthi Churna* and *Lodhra Churna* with *Sharkara* in the patients suffering from *Asrigdara,* on various scientific parameters.

Materials and Methods

Patients attending to the O.P.D of Prasuti Tantra & Stree Roga department, Uttarakhand Ayurved University, Rishikul Campus, Haridwar, were randomly selected based on the following inclusion and exclusion criteria's.

Inclusion criteria

1. Patients aged between 18-45 years, with complaints of excessive bleeding per vagina during menstruation either in amount or in duration or both or during inter-menstrual period for 3 consecutive menstrual cycles.
2. Patients who are using neither oral contraceptive pills nor IUCD for contraception or hormonal treatment.

Exclusion criteria

1. Patient suffering from DUB complicated by non-responding anemia and confirmed for surgical interventions.
2. All patients expected to have any organic involvement or those who cannot be labeled as DUB.
3. Patients considered having extra genital factors for the uterine bleeding like thyroid dysfunction, liver dysfunction, coagulation disorders etc.
4. Patients giving history of recent delivery or abortion.
5. Patient having infections such as candidiasis, trichomonaliasis or any other form of vulvo-vaginitis and pelvic congestion.
6. Patients having systemic illness like TB, diabetes, and hypertension etc.

Study design: Open level clinical trial

Table-1: Posology

Type of Study	Single Group, open trial
Period of Study	90 days
Drugs used	*Shunti and Lodhra Churna*
Dosage	*Shunthi Churna (2 gms) + Lodhra Churna (3gms) 3 times a day after food*
Sahapana	*Sharkara (5gms)*
Route	Oral
Anupana (mode of drug intake)	With cold water
Observation During treatment	At an interval of 45 days till the completion of trial (90 days)
Follow Up Time After treatment	2 consecutive menstrual cycles after the 90 days of treatment period

Method of collection of data

30 patients fulfilling the inclusive criteria were selected. Detailed history of patients was taken on pre-designed specific proforma. History of present complaints with duration, associated symptoms, history of past illness (medical, surgical and drug history), personal history, menstrual history, obstetric history, contraceptive history were recorded. Other important points like marital status, socio-economic statuses were also noted.

Investigations advised

Blood Examination:

Hb%, Total leucocyte count (TLC), Differential leucocytes count (DC), Erythrocyte sedimentation rate (ESR), Platelet count, Bleeding time (BT) and Clotting time (CT).

Urine Examination:

1- For routine and microscopic examination and

2- For culture and sensitivity test.

Stool Examination: routine and microscopic examination.

Ultrasonography:

For condition of uterus and adnexae, any pelvic pathology and thickness of endometrium (ET).

Assessment criteria

Scoring of the symptoms was done before, during and after the study, purely on the basis of patient's explanations.

A. Subjective Parameters

Table-2: Showing the gradation of cardinal symptoms in the study

Symptoms / Criteria	**Score**
Amount of bleeding per menstrual cycle	
Complete soakage of< 3 pads in 24 hours (Average)	0
Complete soakage of 3-4pads in 24 hours (Moderately excessive)	1
Complete soakage of 5-7 pads in 24 hours (Excessive)	2
Complete soakage of or more than 7 pads in 24 hours (Very Excessive)	3

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Complete soakage of 5-7 pads in 24 hours (Excessive)	2
Complete soakage of or more than 7 pads in 24 hours (Very Excessive)	3
Duration of menstrual bleeding	
Bleeding for <5days (Normal)	0
6-7 days (moderately prolonged)	1
8-9 days (prolonged)	2
> 9 days (very much prolonged)	3
Inter-menstrual period	
25-30 days (normal)	0
20-24 days (short)	1
15-19 days (very short)	2
< 15 days (highly abnormal)	3
Pain during menstruation	
No pain	0
Mild pain. Women complain of pain but do not require any medication for relief	1
Moderate pain. Women complain of pain and take one or two doses of drugs for relief. The pain doesn't affect her routine life	2
Severe pain, women complain of pain and take 3-4 doses of drugs for relief. The pain influences the general routine activities	3
Passage of clots	
No history of passing clots with menstrual bleeding	0
Occasionally bleeding with clots (1-2 cycles only)	1
Frequent clots but bleeding without clots are also observed in few cycles in between	2
Bleeding with clots in each menstrual cycle	3

Table-3: Showing the gradation of associated symptoms in the study

Associated Symptoms	Score	
Angamarda	Absent	0
	Present	1
Daurbalya	Absent	0
	Present	1
Bhrama	Absent	0
	Present	1
Aruchi	Absent	0
	Present	1
Daha	Absent	0
	Present	1
Trusha	Absent	0
	Present	1

B. Objective Parameter: Hb%

Table-4: Showing the gradation of Hb% in the study

Hb %	Gradation
Normal (> 11 gm %)	0
Mild (9-11 gm %)	1
Moderate (7-9 gm %)	2
Severe (< 7 gm %)	3

The values of both subjective and objective parameters were noted before, during (after 45 days) and after the treatment to assess the effect of therapy.

Criteria to assess the results:

- **Cured:** 100% relief
- **Marked improved**: More than 76% relief
- **Moderate improvement**: 51% to 75% relief
- **Mild improvement**: 25% to 50% relief
- **No improvement**: <25% relief

Table-5: Demographic observation of total registered patients (n=30)

Observations	Pre-dominance	No. of patients	%
Age	29-37yrs	12	40
Habitat	Rural	15	50
Marital Status	Married	26	86.6
Educational status	High School	9	30
Socio-economic status	Middle Class	20	66.6
Occupations	House Wife	19	63.3
Dietary habit	*Katu Rasa*	8	26.6
Psychological Status	Agitated	15	50
Parity	Multi	21	70

Results of Clinical Trial

The effect of the treatment was analyzed statistically by calculating the mean, standard deviation, standard error, t and p-values by using Paired t-test between the observations before treatment verses after 45 days of treatment and between the observations before treatment verses after the completion of treatment.

Published online in http://ijam. co. in

ISSN: 0976-5921

International Journal of Ayurvedic Medicine, 2019, 10(1), 39-46

Table-6: Showing changes in cardinal symptoms before and during the treatment (n=30)

Chief complaints	Mean		Diff. (BT-DT)	% Change	S.D	S.E	't'	p-value
	BT	DT						
Amount of bleeding	1.76	1.16	0.6	33.9	0.63	0.08	6.7	<0.001
Duration of bleeding	1.93	1.23	0.7	36.2	0.55	0.08	8.36	<0.001
Inter-menstrual bleeding	1.93	1.3	0.63	32.7	0.64	0.08	7.19	<0.001
Clots	1.7	1.2	0.5	29.4	0.65	0.09	5.47	<0.001
Pain during Menstruation	1.63	0.96	0.66	40.8	0.65	0.09	6.79	<0.001

Table-7: Showing changes in cardinal symptoms before and after the treatment

Chief complaints	Mean		Diff. (BT-AT)	% Change	S.D	S.E	't'	p-value
	BT	AT						
Amount of bleeding	1.76	0.73	1.03	58.5	0.72	0.137	7.52	<0.001
Duration of bleeding	1.93	0.8	1.13	58.6	0.47	0.11	10.5	<0.001
Inter-menstrual bleeding	1.93	0.96	0.97	50	0.65	0.09	9.67	<0.001
Clots	1.7	0.9	0.8	47	0.65	0.1	7.29	<0.001
Pain during Menstruation	1.63	0.66	0.96	59.1	0.83	0.12	8.04	<0.001

Table-8: Showing changes in associated symptoms before and during the treatment

Associated symptoms	Mean		Diff. (BT- DT)	% Change	S.D	S.E	't'	p-value
	BT	DT						
Angamarda	0.9	0.5	0.4	40.7	0.48	0.08	4.47	< 0.001
Daurbalya	0.83	0.63	0.2	24	0.4	0.07	2.73	< 0.05
Bhrama	0.73	0.5	0.23	31.8	0.42	0.07	3.02	< 0.05
Aruchi	0.73	0.3	0.43	50	0.4	0.09	4.78	< 0.001
Daha	0.7	0.53	0.16	23.8	0.3	0.06	2.44	< 0.05
Trisha	0.7	0.53	0.16	23.8	0.3	0.06	2.44	< 0.05

Table-9: Showing changes in associated symptoms before and after the treatment

Associated symptoms	Mean		Diff. (BT- AT)	% Change	S.D	S.E	't'	p-value
	BT	AT						
Angamarda	0.9	0.36	0.53	59.2	0.4	0.09	5.8	<0.001
Daurbalya	0.83	0.43	0.4	48	0.5	0.1	3.95	<0.001
Bhrama	0.73	0.36	0.36	50	0.5	0.09	3.66	<0.001
Aruchi	0.73	0.16	0.56	77	0.4	0.09	6.25	<0.001
Daha	0.7	0.43	0.26	38	0.4	0.08	3.29	<0.05
Trisha	0.7	0.46	0.23	33.3	0.4	0.07	3.01	<0.05

Table-10: Showing changes in Hb% before and during the treatment

	Mean		Diff.	% Change	S.D	S.E	't'	p-value
	BT	DT						
Hb %	9.8	10.0	0.2	2.3	0.5	0.74	2.49	<0.05

Table-11: Showing changes in Hb% before and after the treatment

	Mean		Diff.	% Change	S.D	S.E	't'	p-value
	BT	AT						
Hb %	9.8	10.5	0.75	7.68	0.6	0.11	6.76	<0.001

Overall Effect of Treatment:

Table-12: Distribution of patients based on Overall effect of treatment

Criteria to assess the results	No. of patients (n=30)	Percentage (%)
No improvement (< 25%)	0	0
Mild improvement (25-50 %)	11	36.7
Moderate improvement (51-75 %)	18	60
Marked improvement (76-99 %)	1	3.3
Cured (100 %)	0	0

The overall effect of treatment on the different symptoms stands out as we observed 60% of patients studied have improved moderately, followed by mild improvement in 36.7% of patients. We didn't observe any patients under no improvement category. We have observed only one patient (3.3%) within marked improvement group but none in cured category.

Results and Discussion

Effect of therapy on Subjective parameters of *Asrigdara*:

Cardinal Symptoms

While analyzing the changes before, during (after 45 days) and at the end of the treatment period (90 days post-treatment) we observed that the amount of blood loss was reduced to 34% during and to 59% after the completion of treatment. Highly significant reduction was observed in duration of blood loss **(**36% during and 59% after) at the end of the treatment period. We observed an improvement by 33% during and 50% at the end in the inter-menstrual period. While analyzing the changes we observed reduction in passage of clots by 29% during and by 47% after the treatment. We also observed pain relief during menstruation by 41% during and 59% at the end of the treatment period in our treated patient groups (Table-2, 6-7).

Associated symptoms

In *Angamarda,* 41% relief was found during and 59% after the treatment. In *Daurbalya***,** 24% relief was observed during and 48% after the treatment. In *Aruchi,* 50% relief was observed during and 77% after the treatment. In *Bhrama*, 32% relief was found during and 50% after the treatment. In *Daha,* 24% relief was found during and 38% after the treatment. In *Trishna,* 24% relief was found during and 33% at the end of the treatment in our patients. The results were significant in most of the observations (Table-3, 8-9).

The observed values of TLC, DLC, ESR, BT, and CT, Platelet count, Urine and Stool examinations before treatment were within normal limits. *Asrigdara* is not an infective disease. So TLC, DLC, ESR, urine and stool examinations might have been normal. Excessive bleeding due to any coagulation disorders were kept in exclusion criteria, so only the cases having normal bleeding time, clotting time and platelet count were included in the study.

Effect of therapy on objective parameter of *Asrigdara*

Before, during and after the treatment period Hb% was analyzed, and we observed highly significant improvement in the Hb% after the end of the investigation period of treatment (Table-4, 10-11).

Overall effect of therapy:

The total effect of treatment in our treated patients, on the basis of criteria of assessment adopted, has shown that 60% of patients studied have improved moderately, followed by mild improvement in 36.7% of patients. We didn't observe any patients under no improvement category (Table-12). We have observed only one patient (3.3%) within marked improvement category but none in cured category.

Probable mode of action of the drugs in treating *Asrigdara*:

***Shunthi*:**

Acharya Charaka has explained *Asrigdara* is a symptom of *Pittavrita Apanavayu* and *Acharya Sushruta* mentioned it under *Pitta samyukta Apana* (16), *Katu Rasa, Ushna Virya, Dipaniya, Vatanulomaka, Vibandha Nashaka* (17, 18), properties of *Shunthi* helps to normalize the movement of *Apana Vayu* that has get obstructed by *Pitta* in the *Artavavaha Srotasa.* Due to *Dipaniya* and *Pachaniya* properties (19) it regularizes the function of *Yakrita*, hence metabolism of oestrogen becomes normal. So we hypothesized to see the positive effect in regulating the menstrual cycle and also the subsidation of symptoms like *Ajirna, Aruchi* (20) due to *Amadosha Pachana*.

Previous clinical research have shown that ginger, one of the forms of *Shunthi* can reduce symptoms of dysmenorrhea in some women when taken in a specific extract composition (Zintoma, Goldaru) (21). The extract of ginger blocks the formation of inflammatory compounds such as thromboxane, leukotrine and prostaglandins, thus acts as an anti-inflammatory substance (22). Hence,we believe this could have positive regulatory effect on dysmenorrhea. Due to anti-inflammatory effect it is expected to pacify the pelvic congestion (high vascularity), thus the amount of blood loss gets reduced.

Lodhra:

In the pathogenesis of *Asrigdara*, *Chala Guna* of *Vata Dosha*, *Sara* and *Drava Guna* of *Pitta Dosha* (23) increases the amount of blood. Hence this drug might affect the *Sara* and *Drava Guna* of *Pitta Dosha* with the help of *Ruksha, Laghu Guna* and *Kashaya Rasa* (24, 25). So this could be the reason in reducing the amount of bleeding. *Laghu, Ruksha Guna* having *Kapha-Pitta Shamaka* (26) and *Shoshana property* (27) helps in *Sroto Shodhana***.** Production of oestrogen is also increased by the use of fatty products in diet. Fatty materials have shown to increase the cholesterol in the blood circulation. Cholesterol is the precursor of all steroidal hormones; especially in female it is responsible for more production of oestrogen (28). *Kapha Shamaka* and *Lekhaniya Karma* are probably carried out by *Laghu* and *Ruksha Guna* (29) of *Lodhra,* therefore it decreases the production of oestrogen leading to reduced hyperplasia of endometrium.

Biochemically *Lodhra* contains 3-monoglucofuronoside of 7-methyl leucopelagonidin, which makes it glycosidic in nature, which also exerts vaso-constrictive action and reduces the permeability of cell membrane. It has also shown anti-fibrinolytic activity. Ethanolic extract from bark also acts as an analgesic, anti-inflammatory and antioxidant (30). These properties are considered helpful in reducing the amount of bleeding.

Trishna results from the *Rakta Kshaya* i.e the loss of fluids from the body. Anaemic condition results in neuritis, which expresses itself as *Daha.* Due to *Grahi Guna* (vaso-constrictive action) of *Lodhra* is expected to have positive effect in curing *Trishna* and *Daha* by reducing the blood loss (31). It also pacifies *Daha* and *Trisha* due to its *Sheeta Virya* (32).

In a published in–vivo study, *Lodhra* has been shown to be useful and have an effect on regularizing menstrual cycle and also in ovulation (33). In another published report the effect of ethanolic extract of Symlocos recemosa bark powder in treating female reproductive dysfunction in a rat experiment showed significant decrease in the duration of pro-estrous phase and a significant increase in the duration of estrous, metestrous, diestrous phases (34).

Another report to test the hepato-protective effect of Symplocos racemosa Roxb, showed significantly reduction on the levels of hepatic enzymes and total bilirubin (35). In *Asrigdara*, *Yakrita* and *Pliha* get vitiated. So the hepato-protective activity (36) of Symlocos recemosa regulates the conjugation and metabolism of female hormones, which results in maintaining a normal menstrual cycle. *Bhrama* occurs due to blood loss, the haemostatic effect (*Raktasrava nashaka* of *Lodhra* might have effect in controlling *Bhrama*).

The main component of *Lodhra* is large amount of loturine alkaloid and it also contains à-spinosteral. Spinosteral had been shown to have anti-inflammatory activity on isolated guinea pig ileum. It is suggested that *Lodhra* might have influenced the endometrial prostaglandin apparatus, thereby acting effectively in the control of dysfunctional uterine bleeding (37).

Sharkara

Due to *Madhura Rasa*, *Sheeta Virya, Madhura Vipak* (38, 39) *Sharkara* pacifies *Pitta* and *Rakta,* which is the main physiological factor in producing *Asrigdara. Sharkara* is very sweet and increases the taste, mitigates *Vata, Pitta, Rakta*, burning sensation, fainting, vomiting and fever (40). *Madhura Rasa* increases better palatability. Due to *Madhura Rasa* it acts as *Balya, Bringhaniya*, so the symptoms *Daurbalya* might have improved (41). It pacifies 'Raktapitta (42), *Acharya Sushruta* also mentioned *Asrigdara* to be treated just like treatment of *Raktapitta.* Because of its *Sheeta Virya* (43) property, it pacifies *Daha, Trisha*, and *Raja.* So it might have effect to normalize the abnormal menstrual cycle. *Bhrama, Murchha* etc. occur due to cerebral hypoxia resulting from the reduced oxygen carrying capacity of blood. Due to reduction in the amount of blood loss, it could have helped in curing *Bhrama.*

Conclusion

The main principle of the management of *Asrigdar* is *deepana-pachana*, *Agni vardhana*, *rakta sthapana* etc (44). Present research work was on the basis of observations and results of trial drug, pharmacological virtue and chemical constituents. The drugs *Shunthi Churna* and *Lodhra Churna* with *Sahapana Sharkara* possess *Rakta Stambhaka Vatapitta Shamaka* & *Vatanulomaka* properties. Our tested drug combination has shown to be effective in excessive and prolonged bleeding by reducing both amount and duration of blood loss, normalizing inter-menstrual period and also for relief in pain and improvement in consistency of blood. The drug combination also found to reduce the associated symptoms like *Angamarda, Daurbalya, Aruchi, Daha, Bhrama* and *Trisha.*

From the above findings and observations, we can conclude that the drug formulation *Shunthi Churna* and *Lodhra Churna* with *Sharkara,* proved to be effective in treating most of the symptoms of *Asrigdara.*

References

1. Dutta DC. Text book of Gynaecology. Edited by Hiralal Konar, 5 ed. Calcutta; New central book agency; 2009. 183p.
2. Dutta DC. Text book of Gynaecology. Edited by Hiralal Konar, 5 ed. Calcutta; New central book agency; 2009. 79p.
3. Agnivesha, Charaka, Dridhabala. Charaka Samhita, Chikitsha Sthana, Yoni Vyapad Chikitsha, 30/209. Edited by Pt. Rajeswaradatta Shastry and Pt.

Yadunandana Upadhyaya, Varanasi; Chaukhambha Bharati Academy; 2011. 868p.
4. Maharshi Sushruta. Sushruta Samhita, Sharira Sthana, Shukrashonita Shuddhi Sharira, 2/20. Edited by Kaviraja Ambikadutta Shastri, Varanasi; Chaukhambha Sanskrit Sansthan; 2009. 15p.
5. Robert W Shaw, W.P Soutter, Stuart L Stanton. Gynaecology. 3 ed. Churchill Livingstone; 2003. 464-465p.
6. Omran AR, Standley CC, Family Formation Patterns and Health. An International Collaborative Study in India, Iran, Lebanon, Philippines and Turkey. Geneva: World Health Organization. 1976; 335 – 372
7. Omran AR, Standley CC, Family Formation Patterns and Health Further Studies. An International Collaborative Study in Columbia, Egypt, Pakistan, and the Syrian Arab Republic. Geneva: World Health Organization. 1981; 271 – 302
8. Telner DE, Jakubovicz D, Approach to diagnosis and management of abnormal uterine bleeding. Can Fam Physician. Jan, 2007; (53); 58-64
9. Agnivesha, Charaka, Dridhabala. Charaka Samhita, Chikitsha Sthana, Yoni Vyapad Chikitsha, 30/209. Varanasi; Chaukhambha Bharati Academy; 2011. 868p.
10. Agnivesha, Charaka, Dridhabala. Charaka Samhita, Chikitsha Sthana, Yoni Vyapad Chikitsha, 30/115. Varanasi; Chaukhambha Bharati Academy; 2011.858p.
11. Agnivesha, Charaka, Dridhabala. Charaka Samhita, Chikitsha Sthana, Vata Vyadhi Chikitsha, 28/229. Varanasi; Chaukhambha Bharati Academy; 2011. 815p.
12. Lakshmipati Vaidya Shastri. Yoga Ratnakara, Uttarardha, Streerogadhikar, Pradara Chikitsha, Shloka no-18. Edited by Bhisagratna Brahmasankar Shastri, Varanasi; Chaukhambha Prakashan; 2013. 396-401p.
13. Shree Madan Pal. Madanpal Nighantu, Shunthyadi Varga, Shloka no.3-4. Edited by Gyanendra Pandey. 1 ed. Varanasi; Chaukhambha Orientalia; 2012. 72p.
14. Priya Vrat Sharma. Dravayaguna Vijnana, Triptighna Varga, Vol.2. Varanasi; Chaukhambha Bharati Academy; 2006. 617p.
15. Narahari Pandit. Raja Nighantu, Paniyadi Varga, Shloka no.104. Edited by Indradeva Tripathy. Varanasi; Chaukhamba Krishnadas Academy; 2010. 493p.
16. Maharshi Sushruta. Sushruta Samhita, Sharira Sthana, Nidana Sthana, Vata Vyadhi Nidanam, 1/37. Edited by Kaviraja Ambikadutta Shastri, Varanasi; Chaukhambha Sanskrit Sansthan; 2009. 299p.
17. Acharya Sodhala. Sodhala Nighantuh, Haritakyadi Varga. Edited by R.R. Dwivedi. 1ed. Varanasi; Choukhambha Krishnadas Academy; 2009. 83p.
18. Vagbhata. Ashtanga Hridaya, Sutra Sthana, Annaswarupavijnaniyadhyaya, 6/163, edited by Brahmanand Tripathy. Delhi; Chaukhamba Sanskrit Pratisthan; 2009. 120p.
19. Kaiyadev. Kaiyadev Nighantu, Oushadhi Varga, Shloka no.1151-1152. Edited by Priya Vrat Sharma. Varanasi; Chaukhambha Orientalia; 2009. 213p.
20. Dhanvantari Nighantu. Shatapushpadi Varga, Shloka no.83. Edited by Priya Vrat Sharma. Varanasi; Chaukhambha Orientalia; 85p.
21. Natural medicines comprehensive database; www. Naturaldatabase.Com.
22. Gouda PR, Naidu ML. The effect of Ayurvedic drugs when used as disease-modifying Anti-rheumatic drugs in Amavata. Int. J. Res. Ayurveda Pharm. 2012; 3(1); 27-31
23. Agnivesh, Charaka, Dridhabala. Charaka Samhita, Sutra Sthana, Dirghanjibitiya Adhyaya, 1/59-60. Edited by Brahmanand Tripathy. Varanasi; Chaukhambha Surbharati Prakashan; 2010. 32p.
24. Srimad Bhav Mishra. Bhavprakash Nighantu, Haritakyadi Varga, Shloka no.215. Edited by G.S. Pandey. Varanasi; Chaukhambha Bharati Academy; 2013. 124p.
25. Dhanvantari Nighantu. Chandanadi Varga, Shloka no.156. Edited by Priya Vrat Sharma. Varanasi; Chaukhambha Orientalia; 119p.
26. Bapalal G. Adarsha Nighantu, Vol I.Varanasi; Chaukhambha Bharati; Reprint: 2007.
27. Priya Vrat Sharma. Priya Nighantu, Haritakyadi Varga, Shloka no.143. Varanasi; Chaukhambha Surbharati Prakashan; 2004. 33p.
28. Berg JM, Tymoczko JL, Stryer L. Biochemistry. 5 Ed. New York; W H Freeman; 2002, 26(4).1.
29. Agnivesh, Charaka, Dridhabala. Charaka Samhita, Sutra Sthana, Langhanbrihmniya Adhyaya, 22/12. Edited by Brahmanand Tripathy. Varanasi; Chaukhambha Surbharati Prakashan; 2010. 413p.
30. Bhusnar H U, Nagore D H, Nipanikar S U. Phytopharmacological profile of Symplocos racemosa. Pharmacologia. 2014; 5(2); 76-83.
31. Kaiyadev. Kaiyadev Nighantu, Oushadhi Varga, Shloka no.1126. Edited by Priya Vrat Sharma. Varanasi; Chaukhambha Orientalia; 2009. 278p.
32. Narahari Pandit. Raja Nighantu, Pippalyadi Varga, Shloka no.212. Edited by Indradeva Tripathy. Varanasi; Chaukhamba Krishnadas Academy; 2010. 177p.
33. Bhutani K Kr, Jadhav A N, Kalia V. Effect of *Symplocos racemosa* Roxb. on gonadotropin release in immature female rats and ovarian histology. Journal of Ethnopharmacology. 2004; 94; 197-200.
34. Gupta Santosh Kumar, Gupta Amit, Kumar Sokindar, Pandey prabhakar. Adaptogenic activity of *Symplocos racemosa* bark on female reproductive

dysfunction in rats. International conference on global trends in pure and applied chemical sciences. Abstract published in 3rd-4th march 2012, Udaipur, Rajasthan, India.

35. Venkidesh R, Pal D, Ashok Kumar C.K, Saravanakumar A and Mandal SC. Hepatoprotective Activity of *Symplocos racemosa* Roxb. Bark Extract in Carbon tetrachloride induced Liver Damage in Rats. Int. J of Innovative Phamaceutical Research. 2011; 2(3); 147-150.
36. Wakchaure, D Jain D, Singhai AK and Somani R. Hepatoprotective activity of Symlocosrecemosa bark on carbon tetrachloride- induced hepatic damage in rats. J Ayurveda Integr Med. 2011; 2(3); 137-143.
37. Devi K P. Clinical evaluation of Pusyanuga Choorna and Lodhrasava in Raktapradara (DUB). Indian Journal of Traditional knowledge. 2007; 6 (3);429- 31
38. Priya Vrat Sharma. Priya Nighantu, Drava Varga, Shloka no.51. Varanasi; Chaukhambha Surbharati Prakashan; 2004. 236p.
39. Shree Shaligram, Shaligram Nighantu, Ikshu Varga, Khemraja Srikrishnadas Prakashan, Mumbai-4. 2011. 806p.
40. Srimad Bhav Mishra. Bhavprakash Nighantu, IkshuVarga, Shloka no.30. Edited by G.S. Pandey. Varanasi; Chaukhambha Bharati Academy; 2013. 780p.
41. Agnivesh, Charaka, Dridhabala. Charaka Samhita, Atreyabhadrakapya Adhyaya, 26/42. Edited by Brahmanand Tripathy. Varanasi; Chaukhambha Surbharati Prakashan; 2010. 481p.
42. Maharshi Sushruta. Sushruta Samhita, Sharira Sthana, Dravadravyavidhimadhyaya, 45/168. Edited by Kaviraja Ambikadutta Shastri, Varanasi; Chaukhambha Sanskrit Sansthan; 2009. 236p.
43. Dhanvantari Nighantu. Shatapushpadi Varga, Shloka no.102. Edited by Priya Vrat Sharma. Varanasi; Chaukhambha Orientalia; 89p.
44. Pal M, Sharma P, Jain C M, Sharma S. Clinical study to evaluate the effect of Bolbaddha Rasa in Asrigdar. Int. J. Res. Ayurveda Pharm. Jan-Feb, 2016; 7(1); 53-56.

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