WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 11, Issue 10, 1089-1101. Research Article ISSN 2277– 7105

EFFECT OF *KANCHANAR GUGGULU* IN THE MANAGEMENT OF *VATASHTHEELA* W.S.R. TO BENIGN PROSTATIC HYPERPLASIA (B.P.H.): A CONCEPTUAL STUDY

Sonal Bhilare*[1], Yogesh Badwe[2], Jyoti Shinde[3] and Sandesh Khobragade[4]

[1]PG Scholar, Department of Shalyatantra, Shri Ayurved Mahavidyalaya, Nagpur, Maharashtra, India.

[2]Professor and HOD, Department of Shalyatantra, All India Institute of Ayurveda, New Delhi, India.

[3]Professor and HOD, Department of Shalyatantra, Shri Ayurveda Mahavidyalaya, Nagpur, Maharashtra, India.

[4]Associate Professor, Department of Shalyatantra, Shri Ayurveda Mahavidyalaya, Nagpur, Maharashtra, India.

Article Received on
01 June 2022,

Revised on 22 June 2022,
Accepted on 12 July 2022

DOI: 10.20959/wjpr202210-24910

***Corresponding Author**
Sonal Bhilare
PG Scholar, Department of Shalyatantra, Shri Ayurved Mahavidyalaya, Nagpur, Maharashtra, India.

ABSTRACT

Introduction: Benign Prostatic Hypertrophy (BPH) is a common senile disease of elderly male. It is (benign) enlargement of the prostate gland. It is involuntary hyperplasia due to disturbance of the ratio and quantity of circulating androgens and estrogens. As the age advances the serum testosterone levels slowly but significantly decreases and levels of estrogenic steroids are not decreased equally. So, according to these, the prostate enlarges because of increased estrogenic effect. BPH is commonly associated with the lower urinary tract symptoms. In BPH is worsening ability to pass the urine in men due to obstruction in urine pathway by the enlargement of size of prostate. In *Ayurveda* the *Vatashtheela* which is the type of *Mutraghata* may be correlated with BPH on the basis of similarity of symptoms. It is manifested due to deranged function of *Apana Vayu* along with the vitiation of *Kapha* and *Pitta Dosha*. Management of *Mutraghata* given in *Ayurvedic* literature includes *Abhyanga, Niruha Basti, Snehapana, UttaraBasti, Seka, Pradeha, Virechana* etc. **Materials and methods:** In this study, research engines like Ayush portal, PubMed, DHARA, research gate, Scopus, AYU, Google scholar, and Google were used to find out different trials of oral *ayurvedic* medications. **Result:** A

conceptual study was conducted to know the effect of *Kanchanar Guggulu* in remission of symptoms of *Vatashtheela* (BPH). It will help to find out a suitable *Ayurvedic* approach for the management of BPH. **Conclusion:** *Kanchanar Guggulu* is Useful in remission of obstructive and irritative symptoms of *Vatashtheela* (Benign Prostatic Hyperplasia).

KEYWORDS: *Mutraghata, Vatashtheela,* BPH, *Kanchanar Guggulu.*

INTRODUCTION

Acharya Sushruta, the pioneer of *Shalyatantra* has described the urology in his legendary text book of surgery i.e. *Sushruta Samhita* by describing Anatomy, Physiology and Pathology of many diseases releated to urinary system like *Ashmaree* (Urinary stone)[1], *Mutrakrichhra* (Painful urination)[2], *Mutraghata* (Obstruction of urine flow)[3] with their management. *Acharya Sushruta* has explored the subject of urology very vividly and was the first to describe the disease elaborately occurring in the urinary system. Disease of *Mootravaha strotas* are broadly classified in 2 groups as *Mootratipravrutti* and *Mootralpapravrutti. Mootralpapravritti* again categorized into *Mootraghata* and *Mootrakrichra*. *Mootraghata* means low urine output due to obstruction in passage of urine; *Mootrakricchhrata* represents *kricchhrata* (difficulty) in passage of urine is the common feature.

Mutraghata means *mootravarodh.* There are 12 types of *Mutraghata*[4], reflect the symptom of retention, incomplete voiding, dribbling, hesitancy, incontinence of urine etc. These are basically presented the feature of lower urinary tract symptom (LUTS). *Vatashtheela* is one of these 12 types. When vitiated *Apana vayu (dushita vata dosha*) takes place in between the *Basti* and *Guda*; and produces a dence firm glandular swelling which is known as *Vatashtheela* leading to *Vinmutrasanga* with *Adhmana, Ruja*[5], weak urine flow due to obstruction in passage of urine and dribbling micturation. Findings of per rectal digital examinations are as *Vritta Granthi* (round/oval shaped mass), *Sthir Ghana Ashtheelavata Granthi* (hard and firm consistency*) Unnat Granthi* (convex surface) are found in *Vatashtheela.*[6]

This condition can be correlated with Benign Prostatic Hyperplasia *(*B.P.H.*)* in modern medicine. The Prostate is walnut sized gland between the bladder and urethra. The Prostate measures about 4cm transversely, 2cm anteroposteriorly and 3cm vertical diameter with vollume of 25 ml. In men 20 to 30 years of age the prostate weighs approximately 20 gm; however, the mean prostatic weight increases after the age of 50. Prostate gland in the elderly

men starts enlarging in its size and causes pressure over the urethra leading to gradual obstruction of urine flow.

Benign Prostatic Hyperplasia (B.P.H.) is a disease affecting male population after the age of 40years. It can be defined as "A Histological process that over time may result in both anatomic and physiologic changes in the prostate gland and entire lower urinary tract".[7] Benign Prostatic Hyperplasia (B.P.H.) is a disease where adenomatous enlargement of prostate gland causes obstruction of the urethra and bladder outlet. The enlarged gland puts pressure on the urethral passage and due to obstruction of urethra; development of numerous urinary symptoms; includes both obstructive and irritative symptoms i.e. frequency of micturation, Nocturia, Urgency, sensation of poor bladder emptying, intermittent stream of urine, dribbling micturation, poor flow of urine, hesitancy etc. It is age related progressive condition of prostate gland. Cause is possibly an imbalance in the hormonal control of the gland. The enlargement of median and lateral lobes of the gland produces elongation and compression and distortion of urethra; so the patient experiences difficulty in urination and weak stream of urine.[8]

Benign Prostatic Hyperplasia (B.P.H.) can be managed by conservative and surgical management. Medicinal treatment is recommended for mild to moderate BPH; which includes Anti-androgen therapy, Alpha blockers; But retrograde ejaculation is the side effect of these drugs. Prostatectomy, LASER Prostatectomy are the surgical treatment which have a various complications like post TURP syndrome, urethral strictures (narrowing) leading to a 'split stream' of urine, urinary incontinence, impotency, (erectile dysfunction), bleeding during surgery which may requires transfusion.[9]

Acharya Sushruta has mentioned various treatment modalities for the management for *Mutraghata* including *Kashaya, Kalka, Ghrita, Vati, Kshara* etc. which are the combinations of different drugs. As per etio-pathogenesis of *Mutraghata*, *Mutravaha Strotodushti* (disturbance in urinary system) and vitiation of *Apana vayu* are involved. So, *Vatashamak* (reduce the Vata) drugs uses in the treatment of *Mutraghata*. *Ayurveda* definitely provides conservative and minimal invasive options for the management of BPH which are free from any adverse effects. *Kanchanar Guggulu* due to its *Vatakaphahara*, *Shothahara*, *Lekhana*, and *Mutrala* effect and these are considered for better result in *Mutraghata*. It is observed that pathogenesis of BPH is well compared with *samprapti* of *Granthi* and *Arbuda*. So medication for *Granthi* and *Arbuda* can be useful in BPH. *Kanchanar Guggulu* is well

established drug in the management of *Granthi* and *Arbuda*. *Kanchanar* itself is *Granthighna* and *Arbudaghna*[10] as well as *Guggulu* acts as *Vata pacifying agent.*[11] Considering these properties, *Kanchanar Guggulu* will give best results in the management of *Vatashtheela.*

DEFINITION

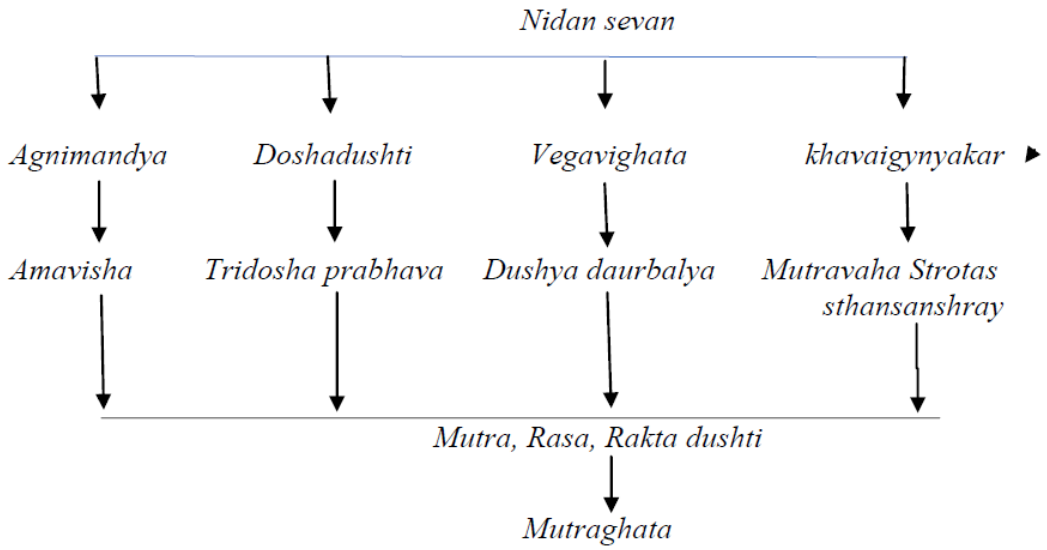
In *Ayurveda*, *Mutraghata* is a broad term as it covers most of the pathological entitie s of the urinary system. Term *Mutrghata* comprises of *Mutra+Aghata* means low urine output due to obstruction in passage of urine. The features like retention of urine (*Mutrasanga*) and pain in suprapubic region are observed due to obstructive pathology and it are often correlated with BPH on the idea of its symptoms and signs.

Benign Prostatic Hyperplasia is a benign enlargement of prostate gland with excessive growth of prostatic nodule.[12]

NIDANA (Causes)[13]

1. *Ativyayama*- Excessive exercise
2. *Teekshna Aushadha*- Drugs of strong potency
3. *Rukshamadya prashana*- Excessive indulgence in dry alcohol
4. *Nityadrutaprishtayaanat*- riding on the back of fast moving animals regularly
5. *Anupmatsya*- Ingestion of flesh of wet land creatures
6. *Adhyashana*- Eating before digestion
7. *Ajeerna*- Indigestion

SAMPRAPTI (Pathology)



***SAMPRAPTI GHATAK* (Factors invlve in pathology)[14]**

Table no-1: Showing *Samprapti Ghatak* in *Mutraghata.*

Dosha	*Vata* (*Apana*) predominant *Tridosha*
Dushya	*Rasa, Rakta, Sweda, Mutra*
Agni	*Jatharagnimandya* and *Dhatvaagnimandya* (digestive fire)
Udbhava Sthana	*Pakvashaya* (GIT)
Adhishthana	*Basti* (Bladder)
Vyaktisthana	*Bastimukha* (Neck of bladder)
Strotasa	*Mutravaha* (Urinary system)
Strotodushti Prakara	*Sanga* (Obstruction), *Vimargagamana* (goes in oblique direction), *Siragranthi* (Obstruction)
Roga Marga	*Madhyama*
Sadhyasadhyata	*Krichhrasadhya* (difficult to treat)

***LAKSHANA* (Symptoms)[15,16]**

Symptoms are devided in two categories on basis of pathology-

Table no-2: Showing Lower Urinary Tract Symptoms (LUTS).

Lower Urinary Tract Symptoms (LUTS)	
Obstructive/Voiding	Irritative/Storage
Hesitancy Weak stream Straining for voiding Prolonged micturition Incomplete evacuation Dribbling micturition	Frequency Urgency Nocturia Urinary incontinence

Criteria For Inclusion of Patients

- Diagnosed patients of Benign Prostatic Hyperplasia of age group between 50 to 80years.
- Uncomplicated BPH.
- Selection will be irrespective of gender, religion, education and socio-economic status.

Criteria For Exclusion of Patients

- Prostatitis.
- Patient with prostatic carcinoma
- Complicated BPH
- Patients with Immunocompromised diseases like uncontrolled Diabetes Mellitus, AIDS, Malignancy and Renal failure.

Selection of Patients

Patients of *Vatashtheela* who fulfilling inclusion criteria selected from OPD and IPD of *Shalyatantra* department in our institute, irrespective of religion, education, and socio-economic status etc. The registered patients were randomly allocated in two groups. The study was approved by Institutional Ethics Committee (IEC), before starting the clinical trial.

MATERIALS

Among 62 registered patients of *Vatashtheela,* in group A (n=32) treated with *Kanchanar Guggulu* 250mg 2 tablet s BD before meal and Group B (n=32) treated with Tablet Tamsulosin Hydrochloride 0.4mg HS for 30 days.

METHODOLOGY

Group A: 32 patients treated with *Kanchanar Guggulu Vati* 250 mg 2 tablets BD before meal for 30 days.

Group B: 32 patients treated with Tablet Tamsulosin Hydrochloride 0.4mg HS for 30 days

Follow up taken on 15th and 30th day.

TRIAL DRUG

Group A

Kanchanar Guggulu Vati 250 mg will be purchase from the autherised distributor of the medicine.

Kanchanar Guggulu exhibited a cytotoxic effect by inhibiting cell division (antimitotic) and reducing cell proliferation. These results substantiate its potential for the treatment of cancer and support its traditional use in the treatment of cancer.[17]

Contents of *Kanchnar Guggulu*:[18]

Table no-3: Showing contents of *Kanchnar Guggulu.*

Dravya	**Latin/Botanical Name**	**Action**
Kanchanar[19]	Bauinia purpurea	*Vranashodhana, Vranaropan, Kushthaghna, krumighna, Vamaka, Kaphaghna, Raktasthambhak, Shothahara, Kasahara, Mutrasangrahaniya, Lekhya, Medohara.*
Amalaki[20]	Emblica officinalis	*Rasayana, Dahaprashamana, Chakshushya, Keshya, Raktashuddhikar, Medhya, Balya, Dnyanendriye Shaktivardhak, Shukravardhan, Prajasthapan, Vrushya, Rasayan.*

Haritaki[21]	Terminalia chebula	*Netrabhishyanda, Dushtavrana, Mukhapaka, Agnimandya, Shula, Anaha, Gulma, Vibandha, Arsha, Kamala, Krumi, Atisar, Grahani, Pravahika, Amlapitta, Yakrutpleehodar, Kasa, shwas, Hikka, Swarabheda, Pratishyay, Jwar, Kushtha, Vaivarnya, Prameha, Mutraghata, Mutrakricchra, Ashmari, Shetpradar, Rasayan.*
Bibhitaki[22]	Terminalia belerica	*Kasaghna, Shothahar, Vedanasthapan, Keshya, Deepan, Pacahan, Anuloman, Krumighna, Raktastambhan, Madak, Vajikar*
Sunthi[23]	Zingiber officinalis	*Agnideepan, Amapachan, Kaphapachan, Vatanuloman, Purish sangrahi, Shoolaghna, Rasasanvahan, Shitaprashaman, Vrushya, Vajikar.*
Maricha[24]	Piper nigrum	*Kaphashoshan, Raktotkleshakara, Lekhan, Pramathi, Agnideepan, Krumighna, Vatanulomana, Yakrutottejan, Artavjanana, Swedjanaan*
Pippali[25]	Piper longum	*Vrushya, Rasaya, Raktotkleshakar, Jantughna, Shirovirechan, Agnideepan, Truptighna, Vatanuloman, Shulaprashaman, Mruduvirechan, Krumighna, Medhya, Vatahar, Pranalunoman, Hikkanigrahan, Mutral*
Varun[26]	Crataeva nurvala	*Bhedan, Jantughna, Vedanashamak, Deepan, Anulomak, Pittasarak, Krumighna, Medaprasadan, Kothaprashaman, Ashmaribhedan, Mutral, Jantunashak*
Ela[27]	Ellettaria cardamomum	*Sukshma ela- dahashaman, Mutrajanan, Durgandhinashan, Dustastravaghna, Shulaghna, Mukhashodhana, Deepan, Pachan, Kasaghna, Balya Bruhad ela- Durgandhinashaka, Dushtastravaghna, Mukhavaishadyakaar, Ruchikar, Anuloman.*
Twak[28]	Cinnamommum zeylanica	*Mukhadurgandhihar, Vranshodhan, Vranaropan, Deepan, Pachan, Vatanuloman, Kaphavilayan, Raktotkleshkar, Vedanasthapan, Aruchinashan, Jantughna, Raktashuddhikar, Rasraktavruddhikar, Ojovardhak, Shukravruddhikar, Mutrajanan.*
Tejpatra[29]	Cinnamommum tamala	*Deepan, Anuloman, Mutrajanana, Garbhashayshodahna.*
Guggulu[30]	Comiphora mukul	Anti-inflammatory, Anti-arthritic, Anti-fertility, Anti-atheroschlerotic, Anti-fertility, Anti-obesity, Hypolipidemic, Hypocholesterolaemic activity.

Group B

Tablet Tamsulosin Hydrochloride 0.4mg will be purchase from the autherised distributor of the medicine.

Tamsulosin Hydrochloride is an alpha blocker. It works by relaxing the muscle around the bladder exit and prostate gland; so as to allow easy passage of urine[31].

FOLLOW UP PERIOD

15th and 30th day

STATISTISTICAL TESTS

Two independent samples are there, hence t test will be used and chi square test will be used to access the significance of proportion between the two groups within the group.

COMPARISON

Before and after treatment comparison will be done by paired t test in each group separately. P value < 0.05 will be considered statistically significant for all comparison.

Formula for sample size:

$$N=\{Z\ 1\text{-}\alpha\ \text{sqrt}^{*}\ 2P(1\text{-}P)\}+Z\ 1\text{-}\beta\ \text{sqrt}^{*}P1\ (1\text{-}P1)+p2(1\text{-}p2)\}\ 2/(p1\text{-}p2)\ 2$$

Where, p=mean of two proportion, p1=group A, p2=group B

ASSESSMENT CRITERIA

SUBJECTIVE CRITERIA- INTERNATIONAL PROSTATE SYMPTOM SCORE (IPSS)

The American Urologic Association (AUA) symptom index was developed as a standardized instrument to assess the degree of bladder outlet obstruction in men. It is widely used and consists of 7 questions i.e emptying, frequency, intermittency, urgency, weak stream and straining, nocturia. Each symptom graded with a score of 0-5 total score ranges 0-35. The International Prostate Symptom Score (IPSS) can be utilize to measure the severity of lower urinary tract symptoms.

Table no-4: Showing severity of International Prostate symptom Score (IPSS).

IPSS	Severity
0 To 7	Mild symptoms
8 To 19	Moderate symptoms
20 To 35	Severe symptoms

OBJECTIVE CRITERIA- Urine flow rate (by Uroflowmetry)

Uroflowmetry is used to measure the flow of urine. It tracks how fast urine flows, how much flows out, and how long it takes. It's a diagnostic test to assess how well the urinary tract functions. By measuring the average and top rates of urine flow, this test can show an obstruction in urinary tract such as an enlarged prostate.

Uroflowmetry is performed by having a person urinate into a special funnel that is connected to a measuring instrument. The measuring instrument calculates the amount of urine, rate of flow in seconds, an d length of time until completion of void. This information is converted

into a graph. The information helps to evaluate function of lower urinary tract or helps to determine if there is an obstruction of normal urine outflow.

RESULT

Result will be drawn according to observation and discussion.

DISCUSSION

Acharya Sushruta described various decoctions i.e. medicated *ghee*, medicated milk, *Leha, Kshar, vati, Madya, Asawa, Sweda, Uttarbasti* which are enriched with various drugs, can be used for treatment of *Mootraghata.* The action of *Kanchanar Guggulu* on enlarging prostate is proved in this study. Its specific indication is in *Gandamaala,* Severe form of *Apachee, Arbuda, Granthi.* The benign hyperplasia of prostate is also a type of *Granthi*. The overall pathological phenomena of BPH shows the fibrotic growth in prostatic parenchyma with hypertrophied mucosa and detrusor muscle of urinary bladder. *Various drugs in Kanchanar Guggulu* have *Katu, Madhura, Tikta, Kashaya Rasa, Ruksha* and *Laghu guna, Ushna virya, Madhura vipaka* with properties of *Vata Kapha dosha Shamana, Pachana, Basti Shodhana, Mootrala, Lekhana* and *Shothahara* (anti-inflammatory), *Medohara*. Because of these properties *Kanchanar Guggulu* enhance the function of bladder. The contents of *Kanchanar Guggulu* are *Kanchanar twak, Triphala, Trikatu, Varuna, Ela, Twak, Tejpatra, Guggulu.*

Recent researches carried out on *Kanchanar* (Bauinia varigata) shows that it contains B-sitosterol, lupeol, kaempferol-3 glucoside. The extract of *Kanchanar* stem bark has anti cancerous activity against epidermal carcinoma; It has excellent effect on goitre and other nodular fibrotic growths.[32] Administration of *Amalaki* (Emblica Officinalis) prevents restrain stress *induced* oxidative stress and elevation in LPO(Lipid per- oxidation) and corticosteroid levels.[33] This plant has pharmacological effects including anti-inflammatory, anti-pyretic, anti-oxidant, anti-carcinogenic and and anti-mutagenic effects.[34] *Bibhitaki* (Terminalia belllerica) extract exhibited ant-prolliferative effects in several cancer cell lines βi.e breast cancer MCF-7, prostate cancer PC-3 and DU-145 cells.[35] *Haritaki* (Terminalia chebula) is used in cough, asthama, piles and urinary disease. *Trikatu* i.e. *Pippali, Maricha* and *Shunthi* are typical complementary component whose benefit is to increase the bioavailability, enhance absorption of other active ingredients and prevents gastrointestinal side effects. *Varuna* contains Lupeol which is used to treat hypercrystalluria, hyperoxaluria and hypercalcilluria. It has antipyretic, analgesics, anti-inflammatory activity. *Ela* (Elleteria cadamomum)has α and β- terpeneols, camphene, nerol, saibenene etc. has specific action on

cardiac disorders, respiratory infections, and dysuria. *Twak* (Dalchini) is known to cure cough, headache, cardio-respiratory disorders, genito-urinary disorders and helminthic manifestations. The essential oil of *Tejpatra* is medicinaly used as carminative , antiflatulant , diuretics. It is used in anorexia, bladder disorders, dryness of mouth, coryza, diarrhoea, nausea, spermaturia.[36] *Guggulu* (Commiphora mukul)contains guggulusterones ranges from E to Z which inhibits tumour cell proliferation, induces s-phase arrest, and promotes apoptosis through activation of c-JunN terminal kinase, suppression of At pathway, and down regulation of antiapoptotic- gene products. So, the action of these all drugs on on enlarging prostate is due to anti-androgenic, anti-inflammatory, antibiotic, anti-mutagenic, and anti-fibroblastic properties. *Kanchanar Guggulu* due to its *vatakaphahara, shothahara, lekhana*, and *mootrala* effect and these are considered for better result in *Mootraghata*. *Kanchanar Guggulu* exhibited a cytotoxic effect by inhibiting cell division (antimitotic) and reducing cell proliferation. These results substantiate its potential for the treatment of cancer and support its traditional use in the treatment of cancer.

CONCLUSION

Mutraghata means obstruction of urine flow. Symptoms of Mutrghata, and Per rectal findings are similar to symptom of BPH. In moderm medicine, BPH treated either conservative treatment i.e. hormonal therapy or surgical treatment i.e. Prostatectomy, LASER Prostatectomy, Prostatic stents etc. But there are many complications like Loss of libido, gynecomastia, post TURP syndrome, urethral strictures (narrowing) leading to a ‘split stream’ of urine, urinary incontinence, impotency, erectile dysfunction, recurrent infrction, bladder change, retrograde ejaculation, bleeding during surgery which may requires transfusion etc. so, Ayurvedic approach i.e *Kanchanar Guggulu* is helpful, clinically safe, effective and it is better option to treat Mutraghata (BPH) and beneficial for old age. After completion of this clinical study it will be helpful to understand the effect of *Kanchanar Guggulu* in the remission of obstructive and irritative symptoms of *Vatashtheela* i.e. Benign Prostatic Hyperplasia.

REFERRANCES

1. Acharya Sushruta, Sushruta Samhita. Ayurveda Tatvasandipika - Hindi Commentry by Kaviraj Ambikadatta Shastri. Nidansthana 3rd Adhyaya/ Shloka no.6., Chaukhamba Sanskrita Sanstana, Varanasi, Reprint, 2012; 311.

2. Acharya Sushruta, Sushruta Samhita. Ayurveda Tatvasandipika - Hindi Commentry by Kaviraj Ambikadatta Shastri. Uttartantra 59th Adhyaya/ Shloka no.3., Chaukhamba Sanskrita Sanstana, Varanasi, Reprint, 2012; 550.
3. Acharya Sushruta, Sushruta Samhita. Ayurveda Tatvasandipika - Hindi Commentry by Kaviraj Ambikadatta Shastri. Uttartantra 58th Adhyaya/ Shloka no.1., Chaukhamba Sanskrita Sanstana, Varanasi, Reprint, 2012; 538.
4. Acharya Sushruta, Sushruta Samhita. Ayurveda Tatvasandipika - Hindi Commentry by Kaviraj Ambikadatta Shastri. Uttartantra 58th Adhyaya/ Shloka no.3, 4., Chaukhamba Sanskrita Sanstana, Varanasi, 2003; 423.
5. Acharya Sushruta, Sushruta Samhita. Ayurveda Tatvasandipika - Hindi Commentry by Kaviraj Ambikadatta Shastri. Uttartantra 58th Adhyaya/ Shloka no.3, 4., Chaukhamba Sanskrita Sanstana, Varanasi, 2003; 423,424.
6. K. Rajgopal Shenoy, Manipal Manual of Surgery, 2nd edition, Chapter-41, 654.
7. Sachin Mittal et al, WJPR-World Journal Pharmaceutical Research. "Comparative study of Rohitakarishta and Kanhanar Guggul in the management of Mootraghata WSR to B.P.H." ISSN-2277-7195, November 2018.
8. Dr. Vineet Kumar Singh Arya S.D.M. College Of Ayurveda, Rajiv Gandhi University of health Sciences, Karnataka, Banglore."Role of Chandraprabha Vati and Mustadi Kalpa in Mutraghata W.S.R. to B.P.H, Udupi – 574118 2010- 2011., 42-4.
9. Shekhavat Narendra Singh et al, IJAAR- International Journal of Applied Ayurveda Research. "A case study of Kanchanar Guggulu and Karkatibeejadi churna in the management of Benign Prostatic Hyperplasia (BPH)" ISSN:2347-6362.
10. Sharangdhar, Sharangdhara Samhita (Krishna Namak Hindi Bhashateeka), Hindi Commentry. Ayurvedacharya Acharya Shree Radhakrishna Parashar. Madhyamkhanda 7th adhyay/ shlok no 95-100. Editor Shree Baidyanath Ayurved Bhavan, Kolkata, 2012; 299.
11. Acharya Priyavat Sharma, Dravyaguna Vigyan (vegetable Drugs), Adhyay 1st -Medhyadi Varga, Vedanasthapana. Chaukhambha Bharati Academy, Varanasi, 2: 55.
12. Sahu Purnesh et. Al., International Journal of Research in Ayurveda and Pharmacy. "Conceptual study with the role of Varunshigru Ghan vati and Trikantakadya Ghrita for the management of Mootraghata: a review". September, 2017; 8(5).
13. Acharya Charaka, Charaka Samhita, Charak chandrika Hindi Commentry by Dr. Bramhanand Tripathi. Chikitsasthana 26th Adhyay/ Shloka no-32. Chaukhambha Subharti Prakashana, Varanasi, 2000; 869.

14. Nehru Mandoli et. Al., International Ayurvedic Medical Journal. "Understanding of Mutraghata w.s.r. to B.P.H. (Benign Prostatic Hyperplasia)." Jan-2017; 1(1), ISSN: 2320-5091.
15. S. Das – A Concise Textbook Of Surgery, Chapter 59- The Prostate and Urethra- Clinical features, 5th Edition. Kolkata-700005. 1260.
16. Sriram Bhat M, Manual of Surgery, Chapter 26- Urology (C)- Prostate- Features, 6th edition, JAYPEE The Health Science Publisher, 2019; 1033, 1034.
17. Prachi Tomar et al, Journal of Integrative Medicine. "Cytotoxic and antiproliferative activity of Kanchanar guggulu, an Ayurvedic Formulation", November 2018; 16(6).
18. Sharangdhar, Sharangdhara Samhita (Krishna Namak Hindi Bhashateeka), Hindi Commentry. Ayurvedacharya Acharya Shree Radhakrishna Parashar. Madhyamkhanda 7th adhyay/ shlok no 95-100. Editor Shree Baidyanath Ayurved Bhavan, Kolkata, 2012; 299.
19. Acharya Priyavat Sharma, Dravyaguna Vigyan, (vegetable Drugs), 3rd Adhyay -Hridyadi Varga-Gandamalanashaka. Chaukhambha Bharati Academy Chaukhambha Bharati Academy, Varanasi, 2018; 2: 234.
20. Acharya Priyavat Sharma, Dravyaguna Vigyan, (vegetable Drugs), 9th Adhyay - Jwaraghnadi Varga-Rasayan. Chaukhambha Bharati Academy Chaukhambha Bharati Academy, Varanasi, 2018; 2: 758.
21. Acharya Priyavat Sharma, Dravyaguna Vigyan, (vegetable Drugs), 9th Adhyay - Jwaraghnadi Varga-Rasayan. Chaukhambha Bharati Academy Chaukhambha Bharati Academy, Varanasi, 2018; 2: 753.
22. Acharya Priyavat Sharma, Dravyaguna Vigyan, (vegetable Drugs), 4th Adhyay - Chhedanadi Varga- Chhedan. Chaukhambha Bharati Academy Chaukhambha Bharati Academy, Varanasi, 2018; 2: 239.
23. Acharya Priyavat Sharma, Dravyaguna Vigyan, (vegetable Drugs), 5th Adhyay - Deepanadi Varga- Truptighna. Chaukhambha Bharati Academy Chaukhambha Bharati Academy, Varanasi, 2018; 2: 331.
24. Acharya Priyavat Sharma, Dravyaguna Vigyan, (vegetable Drugs), 5th Adhyay - Deepanadi Varga- Truptighna. Chaukhambha Bharati Academy Chaukhambha Bharati Academy, Varanasi, 2018; 2: 362.
25. Acharya Priyavat Sharma, Dravyaguna Vigyan, (vegetable Drugs), 4th Adhyay - Chhedanadi Varga- Kasahara. Chaukhambha Bharati Academy Chaukhambha Bharati Academy, Varanasi, 2018; 2: 275.

26. Acharya Priyavat Sharma, Dravyaguna Vigyan, (vegetable Drugs), 8th Adhyay -Mutraladi Varga- Ashmaribhedan, Chaukhambha Bharati Academy Chaukhambha Bharati Academy, Varanasi, 2018; 2: 652.
27. Acharya Priyavat Sharma, Dravyaguna Vigyan, vol-2 (vegetable Drugs), 9th Adhyay - Jwaraghnadi Varga- Dahaprashaman, Chaukhambha Bharati Academy Chaukhambha Bharati Academy, Varanasi, 2018; 719.
28. Acharya Priyavat Sharma, Dravyaguna Vigyan, vol-2 (vegetable Drugs), 4th Adhyay - Chedanadi Varga- Chhedan, Chaukhambha Bharati Academy Chaukhambha Bharati Academy, Varanasi, 2018; 250.
29. A. P. Deshpande, R.R. Javalgekar, Subhash Ranade, Dravyaguna Vigyan, Bhag-2 – A (Aushadhi Vanaspati), Editor- Profishant publishing house, pune, 2019; 1015.
30. Acharya Priyavat Sharma, Dravyaguna Vigyan, vol-2 (vegetable Drugs), 1st Adhyay - Medhyadi Varga- Vedanasthapan, Chaukhambha Bharati Academy Chaukhambha Bharati Academy, Varanasi, 2018; 54.
31. Perinchery Narayan et. Al., Reviews in Urology. "Long-Term Efficacy and Safety of Tamsulosin for Benign Prostatic Hyperplasia." Medreviews, LLC, 2005; 7(4): S42-S48.
32. Danish Javed et. Al., Journal of Ayurvedic And Herbal Medicines. "A Clinical Study To Evaluate The Effect of Kanchanar Guggulu and Virtarvadi Gana Kashaya in The Management Of B.P.H. (Benign ProstaticHyperplasia)." ISSN 2347-2375, Feb, 2015; 03(01): 67-74.
33. Thangaraj R. et. Al., Journal of Health Sciences. "antioxidant property of E. Officinalis during experimentally induced restrain stress in rats", 2007; 53(4): 496-9.
34. Zhang YJ et. Al. "Antiproliferative activity of the main constituentsfrom Phyllanthus emblica." 2004; 27: 251-5.
35. Kaur S. et. Al., "The invitro cytotoxic and apoptoic activity of Triphala – an Indian herbal drug." 2005; 97: 15-20.
36. Kapoor LD. CRC Handbook of Ayurvedic Medicinal Plants, CRC Boca Raton, Florida: Press, Inc., 2000; 117.