



## COMPARISON OF ACTION OF SAW PALMETTO (*SERENOA REPENS*) AND OTHER ALLOPATHIC DRUGS IN BENIGN HYPERPLASIA OF PROSTATE – A RETROSPECTIVE STUDY.

<b>Sangeeta Panigrahy</b>	Assistant professor, Department of microbiology, GEMS Medical College, Aditya Educational society, Srikalum, Ragolu, Andhra Pradesh -532484.
<b>Sarita Panigrahy*</b>	Assistant professor, Department of pharmacology, Gayatri Vidya Parishad Institute of Health Care and Medical Technology, Madhurawada, Visakhapatnam, Andhra Pradesh - 530048. *Corresponding Author
<b>Sunil Kumar Pandey</b>	Professor, Department of pharmacology, Gayatri Vidya Parishad Institute of Health Care and Medical Technology, Madhurawada, Visakhapatnam, Andhra Pradesh -530048.
<b>K.K Panigrahy</b>	Retired professor at PES Medical College, Kuppam; Presently practising at Berhampur Urology Centre, Berhampur – 760001.

**ABSTRACT** **Background:** Benign Prostatic Hyperplasia (BPH) is one of the major geriatric medical problem affecting men of increasing age. Apart from allopathic drugs many herbal drugs have found to be useful in treatment. In previous studies lipidosterolic extract of *Serenoa repens* (Permixon 160 mg twice daily) and Hexan extract of saw palmetto have found to be effective in providing symptomatic relief for BPH patients. This study is intended to Compare the action of Saw Palmetto (*Serenoa Repens*) and Other Allopathic Drugs in Benign Hyperplasia of Prostate.

**Methodology:** It is a retrospective study of BPH patients attended the Berhampur Urology Centre, Berhampur from April 2018 to March 2021. Patients those who were on phytotherapy were allowed to continue for three months to compare the outcome. Rest patients were prescribed with the allopathic drugs depending on the size of the prostate determined by DRE and USG findings. All were advised to continue for the period of three months. At three month a review Ultra Sonogram of Abdomen with PVRU Measurement was done for all the patients and results were noted.

**Results:** Saw Palmetto has also been effective in providing symptomatic relief such as reduction in frequent or urgent need to urinate, reduction in incidence of urination at night times (nocturia), relief in difficulty of initial urination and also in prostate volume reduction and PVUR changes. with advancing age (71-78 years) maximum percent improvement was seen in  $\alpha$ - blockers and combo therapy group (40% and 32%) and only 28% showed improvement with saw palmetto.

**Conclusions:** Saw Palmetto at a dose of 160 mg twice daily was found effective and results were almost comparable to alpha blockers and combination therapy over a period of 3 years. The results are promising for further investigation regarding its use in medical practice.

**KEYWORDS :** *Serenoa Repens*, Allopathic drugs, Benign Prostate Hypertrophy.

### INTRODUCTION

Benign prostate hyperplasia also called prostate gland enlargement is a common condition as men gets older. By 50 years, about 50% of men are diagnosed with BPH; by 80 years, 90% of men are diagnosed, and the greatest prevalence occurs among men aged 70 to 79 years.<sup>1</sup> In BPH there is proliferation of prostatic cells leading to increase in prostate size with urethral obstructive symptoms like hesitancy, intermittency, low power stream etc or irritative lower urinary tract symptoms like frequency, nocturia, urgency etc. Men with BPH can experience great discomfort in urination and may develop complications including recurrent urinary tract infections (UTIs), retention, haematuria, urolithiasis and renal failure.<sup>2</sup> Patients with BPH often report that the symptoms are distressing and bothersome, and impair their quality of life.<sup>3</sup> Drugs frequently used for benign prostate hypertrophy are - Alpha-adrenergic antagonists (Prazocin, terazosin, alfuzosin, doxazosin, silodosin, tamsulosin), 5-alpha-reductase inhibitors (finasteride, dutasteride), PDE-5 inhibitor (tadalafil) and its accompanying side effects are fatigue, headache, dizziness, hypotension, syncope, dry eyes, dry mouth, nasal congestion, erectile dysfunction, ejaculatory dysfunction, loss of libido, gynecomastia.<sup>4</sup> Apart from allopathic drugs many herbal drugs have found to be useful such as African plum - *Pygeum africanum*, Purple cone flower- *Echinacea purpurea*, Pumpkin seeds- *Cucurbita pepo*, Rye- *Secale cereale*, Saw palmetto berry- *Serenoa repens*.<sup>5</sup> Saw palmetto (*Serenoa repens*) is a palm that grows in the southern coastal regions of the U.S. Some Native American peoples have long used its berries as medicine. The berries of the plant are commonly used in supplements to improve prostate health, balance hormone levels, and prevent hair loss in men. It's also associated with other benefits, including decreased inflammation and improved urinary function.<sup>6</sup> Various studies have shown saw palmetto prevents hair loss,<sup>7</sup> improves urinary tract infection, suppresses prostate growth<sup>8</sup> and has anti-inflammatory and anti-oxidant property.<sup>9</sup> When taken as a dried supplement or an oily liquid extraction, saw palmetto appears most effective in daily dosages of 160–320 mg.<sup>10</sup> This study is designed for Comparison of Action of Saw Palmetto (*Serenoa repens*) and Other Allopathic Drugs in Benign

Hyperplasia of Prostate – A Retrospective Study of three years from 2018 to 2021.

### OBJECTIVES

A study was carried to compare the effect of different types of drugs used in the treatment of benign prostate hypertrophy.

### MATERIALS AND METHOD:

It is a retrospective study of BPH patients attended the Berhampur Urology Centre, Berhampur, Odisha from April 2018 to March 2021. Total patients attended were 1427. Out of these 270 had associated complications like Urinary tract infections, Haematuria, Urolithiasis, Lower Urinary Tract Malignancies and Renal Insufficiency and those who could not come for follow-up were excluded from the study. Rest 1157 patients with symptomatic BPH either in the form of obstructive, irritative or both symptoms were taken in to study.

The symptomatic group were evaluated with routine investigations like urine R/M and CS, CBC, Blood Sugar, RFT, PSA and USG Abdomen with PVRU. Physical examination with DRE was noted prior to ordering investigations.

The history of prior treatment received was taken in to consideration. Patients those who were on phytotherapy were allowed to continue for three months to compare the outcome. In our locality the preparations of Saw Palmetto is readily available and widely prescribed by local Indian medicine practitioners. The other patients were prescribed with the allopathic drugs depending on the size of the prostate determined by DRE and USG findings. Below 30 gms/cc prostate patients were advised with Monotherapy of Alpha Blockers and above 30 gms were advised with combination therapy of Alpha Blockers with 5-Alpha Reductase Inhibitors. All were advised to continue for the period of three months. Patients who could complete three-months treatment or continued to follow-up were included in study.

Out of 1157 patients, they were divided into 4 different age groups – 56-60 years, 61-65 years, 66-70 years and 71-78 years. Each age group

patients were prescribed three treatment medications -  
 Group I - Alpha blockers (selective  $\alpha$  1 blockers)  
 Group II -  $\alpha$  blocker + 5  $\alpha$  reductase inhibitor  
 Group III – Phytotherapy (Saw Palmetto) 160 mg twice daily.

All patients were requested to give their consent for examination and follow-up. Patients were assessed monthly with subjective or symptomatic changes and the parameters were noted. At three month a review Ultra Sonogram of Abdomen with PVRU Measurement was done for all the patients and results were noted.

**Statistical analysis:**

The data was entered through Microsoft Excel Software and preserved for comparative analysis.

**RESULTS**

Phytomedicine treatment for BHP has been seen in many centers. The results obtained with treatment (saw palmetto) were compared with the action of allopathic drugs in BHP. The parameters taken into consideration for comparison of the drug effects were size of the prostate by USG findings and symptomatic improvements. The detail results are depicted under each comparative charts and tables for better understanding.

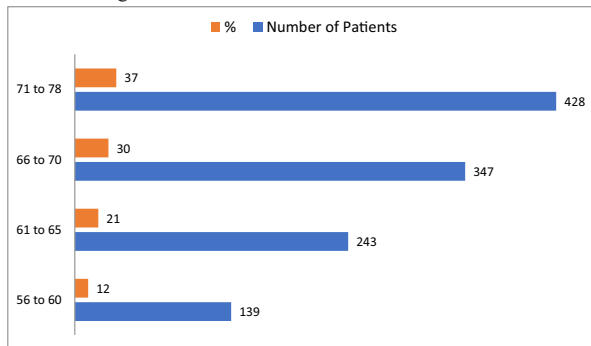


Figure – 1 showing number of patients in different age group.

fig.1-total number of patients included in study were 1157. These participants were additionally divided into different age groups comprising of 56-60 years (139), 61-65 years (243), 66 – 70 years (347) and 71-78 years (428).

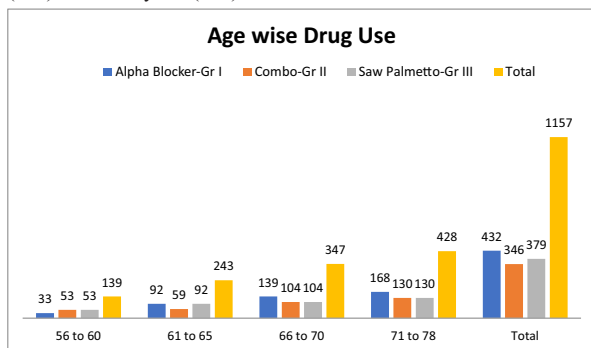


Figure – 2 showing age wise drug use i.e Group -1 [  $\alpha$  blockers], Group – II [  $\alpha$  blockers + 5  $\alpha$  reductase inhibitors, Group – III [ Saw palmetto].

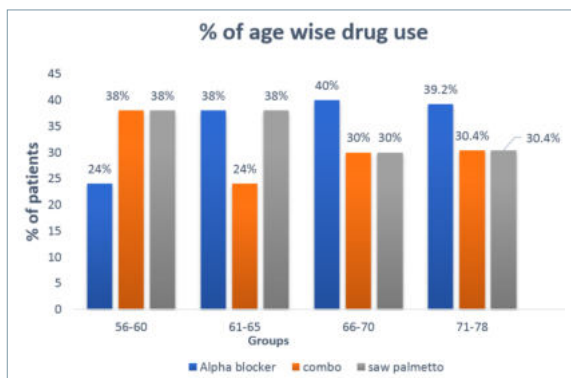


Figure – 2a showing % of age wise drug use i.e Group -1 [  $\alpha$

blockers], Group – II [  $\alpha$  blockers + 5  $\alpha$  reductase inhibitors], Group – III [Saw palmetto].

fig.2- between 56-60 yrs. age group out of 139 patients 33 were on  $\alpha$  blockers, 53 patients were on combo therapy and remaining 53 on Saw Palmetto). Among (61-65 years), out of 243 patients 59 were on combo therapy, remaining 184 were on  $\alpha$  blockers and Saw Palmetto respectively (92 in each group). Between 66-70, out of 347, 139 were on  $\alpha$ - blockers, 104 were on combo and 104 on saw palmetto. Between 71-78 years, out of 428 patients, 168 were on  $\alpha$  blockers and remaining 260 were taking combo and saw palmetto individually.

Fig2a - between 56-60, 24% used  $\alpha$  blockers; remaining 76% used combo and saw palmetto respectively. Among 61 – 65 yrs. 24% were on combo therapy, remaining 76% were taking  $\alpha$  blockers and saw palmetto individually. Amid age group 66-70 years, 40 % were taking  $\alpha$  blockers and rest 60% were on combo and saw palmetto respectively. Between 71-78 years age group 39.2% were on treatment with  $\alpha$ - blockers and remaining 60.8% were on combo and saw palmetto separately.

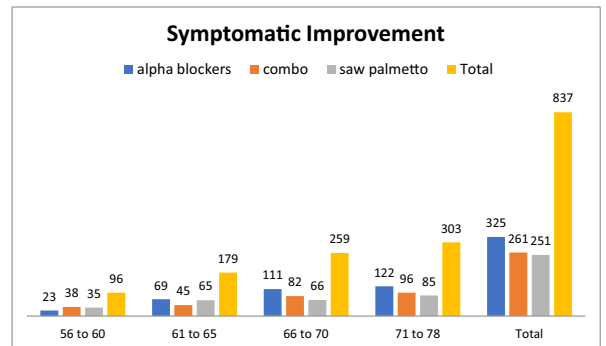


Figure 3- No of patients showing symptomatic improvement after different groups of drug use.

Fig - 3. Symptomatic improvements include reduction in frequent or urgent need to urinate, reduction in incidence of urination at night times (nocturia), relief in difficulty of initial urination, enhancement in urine stream power. Out of total 1157 patients who participated in study, around 837 individuals have experienced symptomatic improvement during their treatment for 3 months duration.

Between age group (56-60), highest improvement was seen in patients (38) taking combo therapy followed by saw palmetto group (35). Among 61-65 years age group, patients (69 patients) taking  $\alpha$  blockers showed better improvement than combo followed by saw palmetto group (65 patients). Next age group between 66 to 70 years, around 111 patients on  $\alpha$  blockers showed higher improvement followed by combo group (82 patients), least improvement was seen in saw palmetto group (66 patients). Among 71-78 years age group, 122 patients on  $\alpha$  blockers showed good improvement followed by 96 patients and 85 patients on combo and saw palmetto treatment respectively.

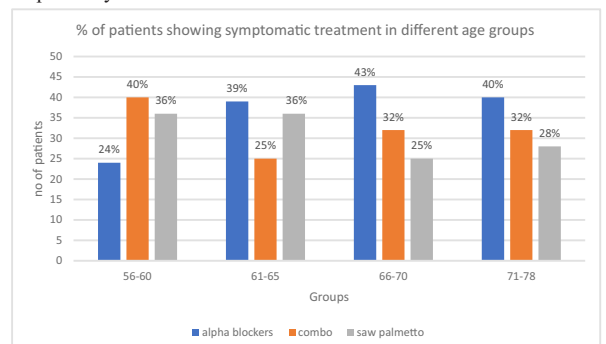
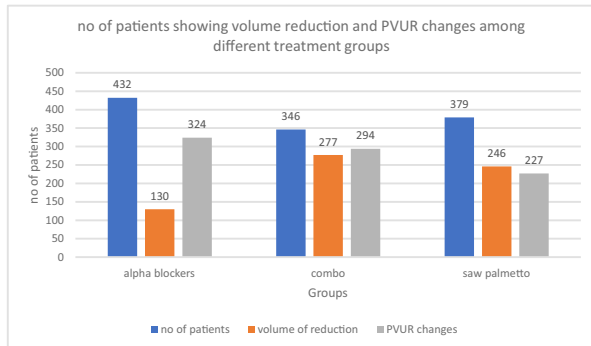


Figure 3a- % of patients showing symptomatic improvement after different groups of drug use.

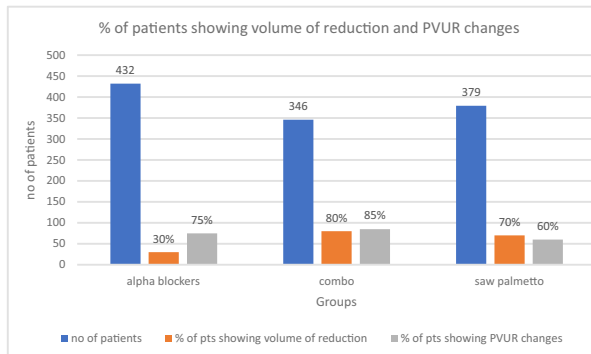
Fig 3a between 56-60 years of age group maximum symptomatic improvement was seen with combo therapy i.e 40% followed by saw palmetto group (36%) and least with  $\alpha$  – blockers (24%). Among 61-65 years, 39% and 36% patients showed improvement with  $\alpha$  blockers

and saw palmetto respectively, only 25% showed improvement with combo therapy. Among 66-70 years, maximum improvement was noticed in  $\alpha$ -blockers group (43%), followed by combo therapy (32%) and least with saw palmetto (25%). Between 71-78 years age group, maximum percent improvement was seen in  $\alpha$ -blockers and combo group (40% and 32%) respectively and only 28% showed positive response with saw palmetto.



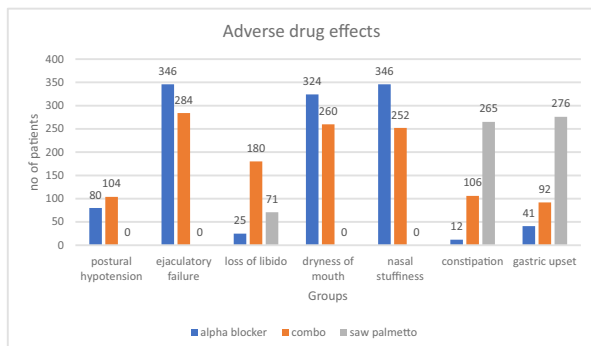
**Figure 4-** No of patients showing volume reduction and PVUR changes after different groups of drug use.

Prostate volume is an important predictor of BPH progression. Among  $\alpha$  blockers group, out of 432, 130 patients have showed prostate volume reduction and 324 patients showed reduction in post voided residual urine (PVRU). In combo therapy group, out of 346, 277 patients showed reduction in prostate volume and 294 patients showed PVUR changes. Among 379 patients who were on phototherapy, 246 patients showed prostate volume reduction and 227 patients have showed PVUR reduction.



**Figure 4a-** % of patients showing volume reduction and PVUR changes after different groups of drug use.

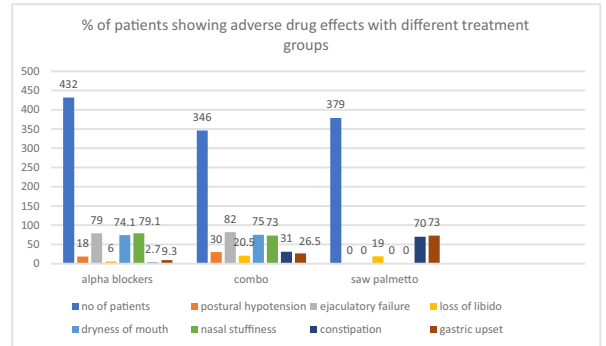
Fig4a showed maximum prostate volume reduction was noticed in group II i.e., 80% followed by group III (70%) which is almost comparable to combo group and least seen in group I (30%). And reduction in PVUR was almost equally high in both  $\alpha$  blockers and combo group (75% and 85%) respectively as compared to saw palmetto group (60%).



**Figure 5-** No of patients experiencing common adverse drug effects while taking different groups of treatment.

In Group I around 79 % individuals experienced ejaculatory failure and nasal stuffiness followed by dryness of mouth (74%) and 18%

showed postural hypotension (it is comparably low as highly selective newer  $\alpha$  blockers are being used). In Group II ejaculatory failure was seen in 80 % of individuals followed by dryness of mouth and nasal stuffiness (75% and 73%) respectively and around 30% patients complained of postural hypotension. In group III (saw palmetto) constipation and gastric upset were the major side effects noticed by 70% and 73% individuals respectively and loss of libido was noticed by only 19% individuals and almost other side effects were negligible. Hence saw palmetto was better tolerable among the patients as compared to allopathic drugs.



**Figure 5a-** % of patients experiencing common adverse drug effects among treatment groups.

**DISCUSSIONS**

In a study by Y.A Patel et al<sup>11</sup>, the lipidosterolic acid extract of serenoa repens (Permixon 160 mg twice daily) was administered for 2 years to 150 clinically diagnosed BPH patients. The result of the study concluded that at the end of the study maximum urinary flow improved, prostate size decreased and sexual function remained stable. But the study had no comparison group. In the present study, there were two comparison groups ( $\alpha$  1 blockers and combo therapy) and the duration of the study was 3 years, based on above parameters, saw palmetto showed improvement in urinary flow, size of prostate but improvement was noticed more in 56-60 years and 61-66 years age group. With advancing age, it showed less improvement (around 26-28%) compared to allopathic groups and loss of libido was noticed only in 19% of patients while majority of patients (70%) on saw palmetto complained of gastric upset and constipation.

In another study by Carrao Jc et al<sup>12</sup>, the saw palmetto extract(320mg) was compared with 5- $\alpha$  reductase inhibitor (5 mg Finasteride) in 1098 men with moderate BPH. Finasteride markedly decreased prostate volume (18%) and saw palmetto improved symptoms with little effect on prostate volume (6%). Saw palmetto treatment group fared better than finasteride in a sexual function questionnaire and gave rise to less complaints of decreased libido and impotence. But the study had weakness due to short study period. In present study, duration of study was 3 years and saw palmetto when compared with combo therapy group, it showed volume of reduction in 70% of patients which was less compared to finasteride and  $\alpha$ -blockers group (85%). And sexual function questionnaire was almost equally comparable i.e. 19% patients in saw palmetto group complained of loss of libido as compared to 20.5% in combo therapy group.

In a study by Debrunye et al<sup>13</sup> Saw palmetto extract (320 mg/day) was shown slightly superior to tamsulosin 0.4 mg/day in reducing lower urinary tract symptoms in severe BPH patients after 3 months up to 12 months of treatment but this study was criticized for lack of placebo arm. In present study, we have studied the symptomatic improvement in different age groups i.e between 56-60 years, 40 % showed improvement with combination therapy followed by saw palmetto group (36%) and least with  $\alpha$ -blocker group (which was contraindicatory to previous study). With advancing age (71-78 years) maximum percent improvement was seen in  $\alpha$ - blockers and combo therapy group (40% and 32%) and only 28% showed improvement with saw palmetto, which is opposite to previous study.

This concludes that saw palmetto has also been effective in providing symptomatic relief such as reduction in frequent or urgent need to urinate, reduction in incidence of urination at night times (nocturia), relief in difficulty of initial urination, enhancement in urine stream power in benign prostate hypertrophy patients and also in prostate volume reduction and PVUR changes and being herbal medicine has

fewer side effects, easily available too. The most effective part of saw palmetto used is its fruit which is known to have anti – inflammatory, anti – androgenic and pro – apoptotic properties. But present study showed with advancing age group, maximum improvement had noticed in allopathic drug groups. As there are limited studies on its safety and efficacy of long-term administration more extensive studies need to be done regarding use of saw palmetto in treating benign prostate hypertrophy.

## CONCLUSION

Previous studies with lipidosterolic extract and hexan extract of saw palmetto have shown effective as a single therapy or in combination with other allopathic drugs against the BPH patients. In present study, saw palmetto at a dose of 160 mg twice daily was studied in comparison to alpha blockers and combination therapy over a period of 3 years.

## ABBREVIATIONS

BPH – Benign prostate hyperplasia/hypertrophy  
 DRE- Digital Rectal Examination  
 urine R/M and CS- Urine Routine and Culture Sensitivity  
 CBC- Complete blood count  
 RFT- Renal Function Test  
 PSA – Prostate specific antigen  
 USG Abdomen with PVRU- ultrasound abdomen with Post Voidal Residual Urine

## REFERENCES

- Sausville J, Naslund M. (2010). Benign prostatic hyperplasia and prostate cancer: an overview for primary care physicians. *Int J Clin Pract*, 64(13),1740-1745.
- Homma Y, Gotoh M, Yokoyama O. (2011). Outline of JUA clinical guidelines for benign prostatic hyperplasia. *Int J Urol*, 18(11), 741-756.
- Dong Y, Hao L, Shi Z. Efficacy and safety of tadalafil 1 monotherapy for lower urinary tract symptoms secondary to benign prostatic hyperplasia: a meta-analysis. (2013). *Urol Int*, 91(1),10-18.
- Sarma AV, Wei JT. (2012). Benign prostatic hyperplasia and lower urinary tract symptoms. *N Engl J Med*, 367(3),248-257.
- Wilt T J, Ishani A, Rutks I, MacDonald R. Phytotherapy for benign prostatic hyperplasia. (2000). *Public Health Nutr*; Dec;3(4A),459-72.
- G S Gerber, D Kuznetsov, B C Johnson, J D Burstein. (2001). Randomized, double-blind, placebo-controlled trial of saw palmetto in men with lower urinary tract symptoms. *J D Burstein Urology*, Dec;58(6),960-4.
- Sundaram Murugusundram. (2009). Serenoa Repens: Does It have Any Role in the Management of Androgenetic Alopecia? *J Cutan Aesthet Surg*.2(1), 31-2.
- Theodore M. Brasky, Alan R. Kristal, Sandi L. Navarro, Johanna W. Lampe, Ruth E. Patterson, Ulrike Peters, Emily White (2011). Specialty Supplements and Prostate Cancer Risk in the VITamins And Lifestyle (VITAL) Cohort. *Nutr Cancer*, May;63(4),573–582.
- Juventino C-Velázquez III Patrick Mailloux-Salinas, Jml Medina-Contreras David Cruz-Robles, Guadalupe Bravo (2015). Effect of Serenoa Repens on Oxidative Stress, Inflammatory and Growth Factors in Obese Wistar Rats with Benign Prostatic Hyperplasia. *Phytother Res*, Oct;29(10),1525-31
- Nelson pr. (2002). A randomized, double-blind, placebo-controlled trial to determine the effectiveness of botanically derived inhibitors of 5-alpha-reductase in the treatment of androgenetic alopecia. *J Altern Complement Med*, 8(2),143-52.
- Pytel, Y.A., Vinarov, A., Lopatkin, N., Sivkov, A., Raynaud, J. P. (2002). Long-Term Clinical and Biologic Effects of the Lipidosterolic Extract of Serenoa repens in Patients With Symptomatic Benign Prostatic Hyperplasia. *Advances In Natural Therapy*, 19(6),297-306.
- Carraro JC, Raynaud JP, Koch G, et al. Comparison of phytotherapy (PermixonR) with finasteride in the treatment of benign prostate hyperplasia: a randomised international study of 1,098 patients. *Prostate* 1996;29:231-40. [PubMed] [Google Scholar].
- Debruyne F, Koch G, Boyle P, et al. Comparison of a phytotherapeutic agent (Permixon) with an a-blocker (Tamsulosin) in the treatment of benign prostatic hyperplasia: a 1-year randomised international study. *Eur Urol* 2002;41:497-507.