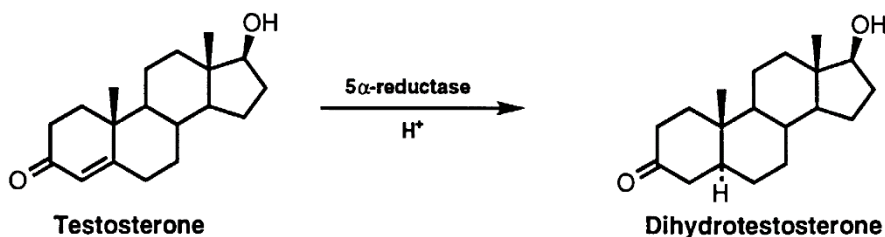


5 α -reductase activity inhibition by USPlus[®] brand Saw Palmetto extract

White Paper

Saw Palmetto berry (*Serenoa repens* (W. Bartram) Small [Arecaceae]; Syn: *Sabal serrulata*, (Michx.) Nutt. ex Schult. & Schult. f.; *Serenoa serrulata* (Michx.) G. Nichols) is native to the Southeastern U.S., and was used by local Native Americans as a diuretic and sexual tonic, as well as for stomachache and dysentery. Today, Saw Palmetto extract (SPE) is the most popular and widely used phytotherapeutic agent for the treatment of symptoms related to benign prostatic hyperplasia (BPH).¹ By 2002 the SPE based supplements consumption had risen up to the fifth bestselling herbal dietary product in the USA.²

The suggested mechanism of SPE action is a mild inhibition of the activity of 5 α -reductase,³ the enzyme which catalyzes conversion of testosterone into dihydrotestosterone (DHT).



DHT, in its turn, is linked to the development of BPH. In other words, *inhibition of 5 α -reductase activity results in lesser DHT synthesized in the body from testosterone, and therefore, reduced chances of BPH development.*

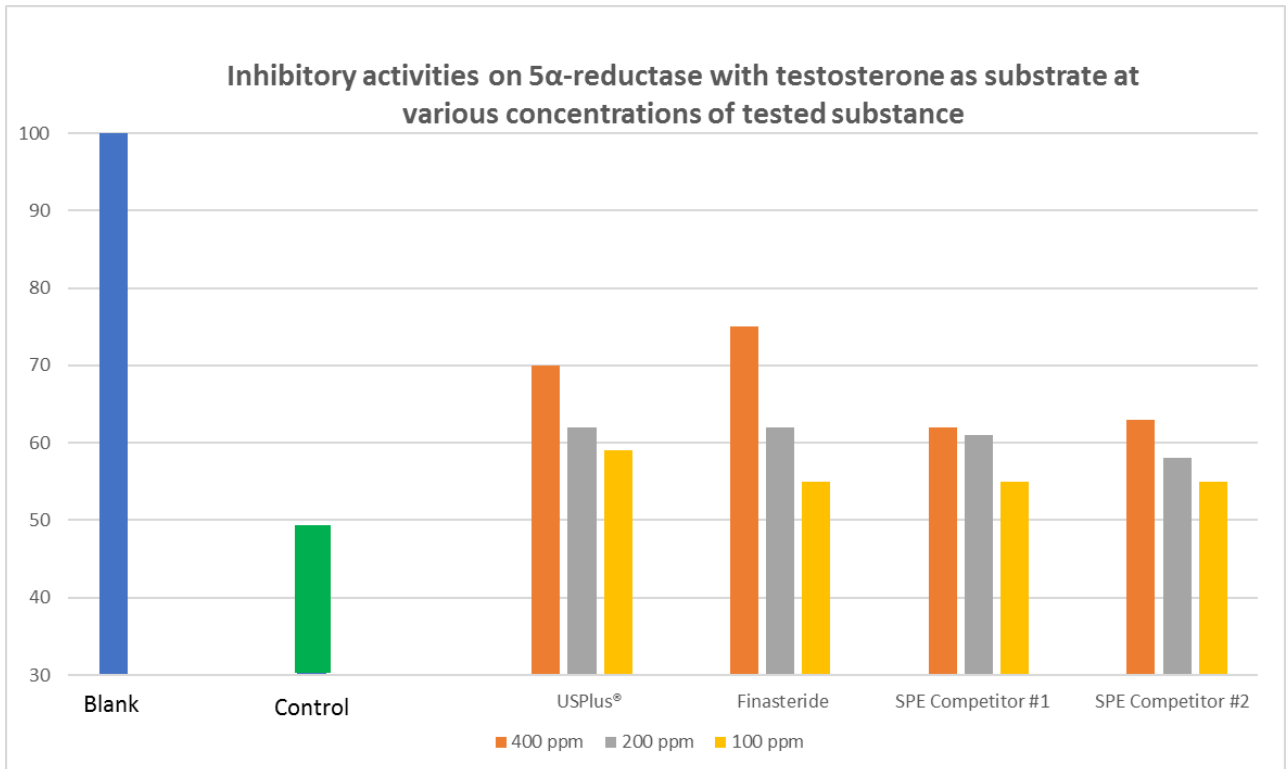
It is shown *in vivo* that the anti-BPH property of Saw Palmetto extract is comparable with the commonly used synthetic 5 α -reductase inhibitor, Finasteride.⁴ In addition, the efficacy of SPE is decisively confirmed by a rather high amount of evidences and clinical trials.^{5,6,7,8,9}

Valensa's USPlus[®] brand Saw Palmetto extract is currently the well-established industry standard for quality with its patented solvent free state-of-the art Deep Extract[®] High Pressure CO₂ extraction. Every lot of extract without exception is scrupulously tested in our laboratory to confirm its compliance with the current USP requirements and even stricter standards developed by Valensa International^{10,11} by applying unique analytical approaches to verify product quality and authenticity.

In order to confirm its high efficacy, the USPlus[®] brand SPE was recently tested *in vitro* for its 5 α -reductase inhibition activity. Testing was done in the College of Pharmacy of the Chung-Ang University, Seoul, Korea.

As a result of comparative tests, it is now experimentally confirmed that **USPlus® brand SPE has noticeably greater 5 α -reductase activity inhibition effect than two other competing brands, and most importantly, USPlus® shows inhibition effect, which is very close to that of registered drug, Finasteride.**

The final results are demonstrated with the graph below:



Inhibitory activities on 5 α -reductase with testosterone as substrate with 400, 200 and 100 ppm concentrations of tested substance

B - Blank sample

C - Control

¹ A.E. Gordon, A.F. Shaughnessy, "Saw Palmetto for Prostate Disorders," *American Family Physician*, 2003; **67**; 1281-1283.

² M. Blumenthal, T. Hall, A. Goldberg, T. Kunz, K. Dinda, J. Brinckmann, B. Wollschlaeger, "Saw Palmetto," *The ABC Clinical Guide to Herbs, American Botanical Council, Austin, TX*, 2003; 309-319.

³ L.S. Marks, D.L. Hess, F.J. Dorey, M.L. Macairan, P.B. Cruz Santos, V.E Tyler, "Tissue Effects of Saw Palmetto and Finasteride: Use of Biopsy Cores for in situ Quantification of Prostatic Androgens," *Urology*, 2001; **57**; 999-1005.

- ⁴ J-C. Carraro, J-P. Raynaud, G. Koch, G.D. Chisholm, F. Di Silverio, P. Teillac, F.C. Da Dilva, J. Cauquil, D.K. Chopin, F.C. Hamdy, M. Hanus, D. Hauri, A. Kalinteris, J. Marencak, A. Perier, P. Perrin, "**Comparison of Phytotherapy (Permixon) with Finasteride in the Treatment of Benign Prostate Hyperplasia: A Randomized International Study of 1,098 Patients,**" *Prostate*, 1996; **29**; 231-240.
- ⁵ P. Boyle, C. Robertson, F. Lowe, C. Roherborn, "**Meta-Analysis of Clinical Trials of Permixon in the Treatment of Symptomatic Benign Prostatic Hyperplasia,**" *Urology*, 2000; **55**; 533-539.
- ⁶ F.C. Lowe, J.C. Ku, "**Phytotherapy in Treatment of Benign Prostatic Hyperplasia: a Critical Review,**" *Urology*, 1996; **48**; 12-20.
- ⁷ M. O'Hara, D. Kiefer, K. Farrell, K. Kemper, "**A Review of 12 Commonly Used Medicinal Herbs,**" *Archives of Family Medicine*, 1998; **7**; 523-536.
- ⁸ Y.A. Pytel, A. Vinarov, N. Lopatkin, A. Sivkov, L. Gorilovsky, J-P. Raynaud. "**Long-term Clinical and Biologic Effects of the Lipidosterolic Extract of *Serenoa repens* in Patients with Symptomatic Benign Prostatic Hyperplasia,**" *Advances in Therapy*, 2002; **19**; 297-306.
- ⁹ T.J. Wilt, A. Ishani, G. Stark, R. MacDonald, J. Lau, C. Murlow, "**Saw Palmetto Extracts for Treatment of Benign Prostatic Hyperplasia: A Systematic Review,**" *Journal of the American Medical Association*, 1998; **280**; 1604-1609.
- ¹⁰ G. Mikaelian, M. Sojka, "Authenticating **saw palmetto extract: a new approach,**" *Nutraceutical Business & Technology*, 2009; **5**; 24-27.
- ¹¹ G. Mikaelian, M. Sojka, J. Minatelli, "**The ultimate way to win the fight against saw palmetto extract adulteration,**" *Nutraceutical Business & Technology*, 2009; **1**; 46-49.