Saw Palmetto: Time-Honored Botanical for Prostate Health

by Suzanne E. Sky, L.Ac., MTOM

Saw Palmetto (*Serenoa repens or Sabal serrulata*) has a centuries-long history of therapeutic use from the indigenous Americans to modern times. Saw Palmetto berries have always been used primarily for their therapeutic benefits in male genitourinary disorders and prostate conditions. They are traditionally highly revered as a nourishing and strengthening tonic, particularly for the male reproductive system.[1-3]

Today, Saw Palmetto extract is noted as the mostly widely-used botanical for treatment of BPH (benign prostatic hyperplasia).[1-5] Saw Palmetto is one of the most rigorously researched botanicals with many studies and large clinical trials.6 Throughout Europe, standardized Saw Palmetto extract is well-established as a first-line treatment for BPH by physicians. In Germany and Austria, over 90% of physician prescriptions for BPH are botanicals; most notably Saw Palmetto Extract.[2,4,7] In Italy, botanicals account for almost half of drugs dispensed for BPH.[4] Standardized Saw Palmetto extracts are approved for BPH in France and Germany.[2]

SAW PALMETTO HISTORICAL USAGE

Saw Palmetto, a dwarf palm tree that reaches about six to ten feet, is native to Florida and the South Atlantic Coast. It is also native to North Africa and Southern Europe.[4,5,8]

The berries were traditionally used by indigenous Floridians as both food and medicine; particularly for genitourinary conditions and as a sexual tonic. They also used the berries as a diuretic, to relieve inflammation of the mucus membranes, to increase testicular function, and in women, to enhance breast size.[4,8]

In the 19th century, American Eclectic Physicians valued Saw Palmetto berries for prostate irritation, to relax the tissues, and to treat enlarged prostate.[3,9] Saw Palmetto was listed as a therapeutic agent in the United States Pharmacopoeia from 1906 to 1917 and then again from 1926 to 1950. It was eliminated only because the active principle was not identified at that time.[6,8]

CONSTITUENTS AND RESEARCH OVERVIEW

The large, dark red Saw Palmetto berries are especially rich in nourishing fatty acids and plant sterols. Other constituents include polysaccharides, flavonoids, carotenoids, and volatile oils. The fatty acid content includes caprylic, lauric, and oleic fatty acids and the phytosterol compounds include beta-sitosterol, stigmasterol, and campestrol.[3,5,8,10]

Numerous clinical and research studies demonstrate the safety of Saw Palmetto berries and Saw Palmetto extract. The AHPA (American Herbal Products Association) rates it as Safety Class 1 (herbs that can be safely consumed when used appropriately) and Interaction Class A (herbs for which no clinically relevant interactions are expected.) Research reviews, the Cochrane database, the European Expanded Commission E report, the WHO (World Health Organization) monograph, and multiple clinical trials report high safety with no known toxicity.[1-5;10-12]

SAW PALMETTO LIPIDOSTEROLIC EXTRACTS

The most highly-regarded Saw Palmetto Extracts (SPE) for therapeutic usage are lipidosterolic extracts standardized to around 85% fatty acids. The usual dose of SPE in the literature is 160 mg, twice a day, which is considered the equivalent in fatty acid content to 10 grams of whole dried berries.[2]

Three main types of SPE are characterized by their extraction method: either hexane, ethanol, or CO2 extraction. PermixonTM is a n-hexane lipidosterol extract made in France with about 81% to 91% fatty acids. Considered the gold standard in Europe, it is the most highly-studied Saw Palmetto extract both in research and in clinical trials worldwide. As the most widely-used form of SPE in Europe, it is found to be well-tolerated and to support quality of life. The supercritical CO2 extraction is also highly regarded therapeutically. This

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method preserves the high integrity and concentration of the fatty acids and other plant compounds. Fatty acid content is favorably high in the range of 85% to 95%.[2] The data from studies and clinical trials on Saw Palmetto extracts confirm its suitability as a therapeutic botanical to treat uncomplicated BPH.[1,2,6,13,14]

PROSTATE HEALTH, BPH, AND SAW PALMETTO

The health, development, and growth of the prostate is influenced by hormonal modulation. Dihydrotestosterone (DHT) plays a key role in these processes. In the prostate, the enzyme steroid 5-alpha-reductase (5-AR) converts testosterone to DHT, which binds to androgen receptors in the nucleus of prostate cells and stimulates cellular growth and division. Both DHT and 5-AR levels are found to be much higher in BPH prostate tissues.[6] Since DHT can stimulate 5-AR, a positive feedback loop is created, which results in increasing DHT levels.[4-6;13] For this reason, lowering DHT in prostate tissues is a therapeutic target in treating BPH.

Saw Palmetto lipidosterolic extract is found to influence prostate health through multiple mechanisms. Its ability to inhibit 5-AR, both types I and II, is believed to be the primary mechanism through which Saw Palmetto helps decrease DHT in BPH tissues. This action is attributed to the high levels of the free fatty acids from the berries.[5,13] Studies show that both the n-hexane extract and the supercritical fruit extract of Saw Palmetto inhibit 5-AR activity in vitro.[10] Some research notes competitive binding[13] and others report non-competitive binding at these sites.[4,6]

SAW PALMETTO AND PROSTATE HEALTH

Plants offer a wide-spectrum of activity due to containing many types of chemical compounds. Saw Palmetto, particularly noted its fatty acid component, is found to be preferential for prostatic tissue, which bears out its usage for prostate health over the centuries.[4-6]

Many studies report beneficial results and relief of symptoms of SPE over placebo.[1,3,5,10,11] In studies comparing SPE with finasteride, it was found that those taking SPE experienced only few and mild side effects. SPE was found to have little effect on androgen-dependent parameters.[4] In several large and long-term clinical trials, only around 1% to 2% of subjects noted mild, infrequent side effects – primarily minor gastrointestinal complaints.[1,2,5,6,8] The differences in adverse events between SPE and placebo were considered statistically insignificant.[11]

In a number of studies, men using Saw Palmetto experienced a much lower rate of sexual dysfunction than those on finasteride (1.1% compared to 4.9%) This includes loss of libido, impotence, and less erectile dysfunction.[1,2,4,8,12] Review articles note that Saw Palmetto has not been associated with erectile dysfunction, ejaculatory disturbance, or altered libido.[8]

In clinical trials with Permixon™, sexual function was found to remain stable, and some trials reported significant improvement in sexual function and quality of life during the second year, as measured statistically by significant increase in the IIEF (the International Index of Erectile Function).[6,14,15] A clinical trial found that Saw Palmetto does not affect plasma hormone levels including testosterone, FSH, or LH in men.[12,14]

Some studies, such as those with Permixon™, note a preferential decrease in DHT with a concurrent rise of testosterone and decrease of EGF in BPH prostate tissue.[13] Saw Palmetto extract is also noted to inhibit nuclear estrogen receptors in prostate tissue.[6] Estrogen contributes to BPH because it inhibits the hydroxylation and elimination of DHT.[2] With aging, testosterone levels in men naturally decrease and concurrently, prolactin levels increase. In animal studies, SPE is found to decrease prolactin levels, which have a modulatory effect on the prostate and play a role in prostate health.[6]

The proliferative index, which is low in a healthy adult prostate, becomes significantly higher in BPH tissue. Studies report a significant decrease in the proliferative index in those with BPH after 3 months of taking SPE (Permixon™).[4] Interestingly, several studies note that Saw Palmetto does not interfere with PSA protein expression.[14,16]

Studies consistently find that Saw Palmetto lipidosterolic extract exerts anti-inflammatory activity and plays a somewhat modulatory role in the prostate through its influence. Saw Palmetto liposterolic extract is found to down-regulate the COX and 5-LOX inflammatory pathways and to decrease TNF (tumor necrosis factor).[4-6;10,17]

Plants are polypharmic and work in a modulatory fashion. Actions of SPE reported in the literature[2,4]:

- anti-inflammatory
- anti-proliferative
- decreases DHT in BPH tissue through inhibition of 5-AR I & II
- down-regulates nuclear androgen receptors and cytosol androgen receptors
- anti-estrogenic
- inhibits growth factor-induced prostatic proliferation
- inhibits prolactin-induced prostatic growth
- spasmolytic effect on smooth muscle
- anti-edemic influence
- does not affect PSA levels

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