

## COVER STORY

### Flower Pollen

#### Powerful Protection for Prostate Health

by Heather S. Oliff, PhD



*A nutritional supplement has become available in the US that offers promising benefits to the millions of men affected with benign prostatic hyperplasia. Cernitin®, a natural remedy derived from pollen extracts, has been found to help manage the troublesome symptoms associated with benign prostatic hyperplasia.*

The prostate is a walnut-sized gland that is part of the male reproductive system. Its major function is to contribute seminal fluid. Located inside the body cavity, the prostate sits in front of the rectum and just below the bladder. The prostate gland surrounds the urethra, the canal through which urine exits the body. Prostate gland enlargement can be caused by prostate cancer, but 80% of the time it is attributable to benign prostatic hyperplasia.<sup>1</sup>

As men age, the prostate gland increases in size, making benign prostatic hyperplasia one of the most common age-related conditions in men.<sup>2</sup> The enlarged gland puts pressure on the urethra, acting like a partial clamp and thus causing numerous urinary symptoms. Benign prostatic hyperplasia is a progressive disease, but it does not usually cause problems until late in life.<sup>2</sup> Although it rarely causes symptoms in men younger than age 40, benign prostatic hyperplasia affects more than 50% of men in their sixties and 90% of men in their seventies and eighties.<sup>1</sup>

The cause of benign prostatic hyperplasia is still poorly understood, but it is likely that several factors play a role. Prostate cell growth can be stimulated by accumulation in the prostate of dihydrotestosterone (DHT), an active form of testosterone that can be regulated with certain nutrients and drugs. It can also be stimulated by accumulation of estrogen in the prostate, other growth factors, or complex interactions between cell layers of the prostate. In addition, genetic factors likely play a role—having a family member with benign prostatic hyperplasia increases the likelihood that you will develop it as well.

Medical evaluation of urinary symptoms is the first step in managing them. Since untreated prostate cancer can lead to death, it is important for a medical professional to rule out prostate cancer. Non-malignant enlargement of the prostate gland, or benign prostatic hyperplasia, may require treatment to help alleviate the symptoms. Although not life threatening, untreated benign prostatic hyperplasia can cause chronic problems such as loss of sleep, urinary tract infections, bladder or kidney damage, bladder stones, and incontinence.<sup>1</sup> Men with severe benign prostatic hyperplasia may require surgery. Mild to moderate benign prostatic hyperplasia can often be managed with herbal remedies or conventional pharmaceuticals.<sup>2</sup> When treatment is started during the early stages, there is a reduced risk of developing complications.<sup>1</sup> Preventive measures may also be valuable in protecting prostate health.



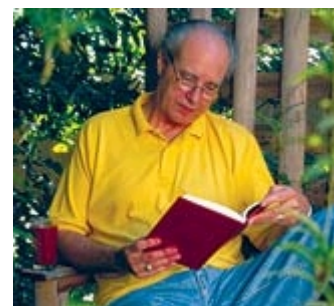
#### How Flower Pollen Helps The Prostate

Cernitin® is a microbiologically fermented extract created from the pollen of various plants, including rye grass. Pollens—the male seeds that enable flowering plants to reproduce—are gathered directly from plants in the field. (Bee pollen is not used.) The flower pollens are then combined in standardized proportions. The husks that sheath the microscopic pollen grains are removed using a Swiss-developed technology to eliminate the bacteria, fungi, toxins, and pollutants that are attached to the husk. This produces a product that is free from toxic substances and less likely to cause allergic reactions. Two fractions are produced in the extraction process: a hydrophilic, water-soluble fraction and a lipophilic, fat-soluble fraction. Cernitin® contains both the water- and fat-soluble fractions. Chemical analysis of Cernitin® indicates that it contains many constituents, including vitamins and minerals, carotenoids, amino acids, enzymes, phytosterols, lipids, and fatty acids.

Although its exact mode of action is unknown, studies have suggested a number of mechanisms by which Cernitin® may help manage benign prostatic hyperplasia. Research suggests that Cernitin® has anti-inflammatory and anti-DHT properties.<sup>3,4</sup> Inhibiting inflammation decreases swelling and improves urine flow. Inhibiting DHT may prevent unhealthy prostate growth. Additional evidence indicates that Cernitin® works on the urinary tract by relaxing the smooth muscle tone of the urethra, thus

improving urine flow, increasing bladder muscle contraction to push the urine out, and relaxing the sphincter muscles, which help hold the urine in the bladder.<sup>5-7</sup> Together, these actions would improve the urine flow rate and reduce the amount of urine remaining in the bladder after urination, thereby decreasing urinary frequency.

Scientists discovered that the fat-soluble fraction of Cernitin® can inhibit undesirable prostaglandins, the hormone-like substances that are potent mediators of physiological processes such as inflammation.<sup>8</sup> The inhibition of prostaglandins may decrease inflammation of the prostate, relax the smooth muscles of the urethra, and inhibit proliferation of prostate cells.<sup>8</sup>



In addition, scientists discovered that the fat-soluble fraction of Cernitin® could inhibit the enzyme 5alpha-reductase in prostate gland tissue.<sup>9</sup> In benign prostatic hyperplasia, the enzyme 5alpha-reductase often converts testosterone to excess DHT, thus causing DHT to accumulate.<sup>10</sup> DHT stimulates growth of the prostate and has a role in the development of benign prostatic hyperplasia.<sup>10</sup> Because Cernitin® inhibits 5alpha-reductase, DHT formation was significantly inhibited.<sup>9</sup> While Cernitin® presumably decreases DHT formation in benign prostatic hyperplasia, additional studies are needed to confirm this.

In addition to DHT, growth factor peptides regulate the growth of the prostate. Large concentrations of epidermal growth factor are retained in prostate glands with benign prostatic hyperplasia.<sup>11</sup> Preliminary evidence suggests that Cernitin® may control abnormal growth of the prostate gland by affecting the prostate's concentration of epidermal growth factor.<sup>11</sup>

### Research Validates Cernitin's® Effects

A number of impressive trials conducted to evaluate the effectiveness of Cernitin® have concluded that Cernitin® has a beneficial effect in the management of benign prostatic hyperplasia.<sup>3</sup> In one study that lasted four months, 89 men with benign prostatic hyperplasia were treated with either Cernitin®, Tadenan® (a European pygeum extract drug), or a control. In the Cernitin® group, 78% of the men reported improvement in subjective symptoms, especially in obstructive and irritative symptoms. The Cernitin® group also had significant improvement in urine flow rate, residual urine volume, and prostate volume.<sup>12</sup>

Another study found that longer treatment with Cernitin® was required for the prostate volume to decrease.<sup>13</sup> In this trial, 79 men with benign prostatic hyperplasia treated with Cernitin® had a mean decrease in prostate volume after one year of treatment, but no change in prostate volume at just three months.<sup>13</sup> As in the other study, the men reported a significant improvement in subjective symptoms, urine flow rate, and residual urine volume as measured after three months of treatment.

The benefits of Cernitin® were also demonstrated in a well-designed, double-blind, placebo-controlled study of 60 men with outflow obstruction due to benign prostatic hyperplasia.<sup>14</sup> They were treated with Cernitin® (two capsules twice daily, containing 63 mg of pollen extract) or placebo for six months. The Cernitin® group had a statistically significant overall improvement in subjective symptoms compared to the placebo group. Nocturia (frequent urination at nighttime) was improved or eliminated in 60% of the patients treated with Cernitin® compared to 30% of the patients treated with placebo. In addition, 57% of patients treated with Cernitin® showed improvement in bladder emptying compared to only 10% in the placebo group. Residual urine volume also decreased significantly in the patients receiving Cernitin® compared to those receiving placebo. The Cernitin®-treated patients also had a significant decrease in prostate gland volume. The study authors concluded, "A longer duration of treatment or a larger dosage may produce a more pronounced benefit and Cernitin®, which appears to have no untoward side effects, may prove to be a useful agent in alleviating the early symptoms of outflow tract obstruction due to benign prostatic hyperplasia."<sup>14</sup>

Cernitin® appears to be safe and well tolerated.<sup>3,4,12-14</sup> No adverse reactions to its use have been reported.<sup>4</sup> Cernitin® taken orally or presented in a sachet (a receptacle for scents) did not cause allergies in patients who are usually highly allergic to flower pollen.<sup>15</sup>

While clinical studies are needed for confirmation, using Cernitin® as a preventive agent also may hold advantages. Since the prostate gland grows with age and symptoms of benign prostatic hyperplasia take years to develop, using a product like Cernitin®, which has been shown to reduce the size of the prostate, may lessen the risk of developing benign prostatic hyperplasia. In addition, studies of human-derived prostate cancer cells suggest that the water-soluble fraction of Cernitin® may inhibit cancer cell growth.<sup>16</sup>

### OTHER BENEFITS OF CERNITIN

A chemical analysis of Cernitin® shows that it contains an impressive array of biologically active compounds. These include vitamins (water and fat soluble), minerals, carotenoids, dietary and physiological amino acids, enzymes (including six enzyme classes containing at least 100 different enzymes), lipids, fatty acids, phyto-sterols, long chain hydrocarbons, prostaglandins, streptolysin inhibitory factors, flavonoids, and growth regulators, among

others.

With its unique, wide-ranging array of biological agents, it is no wonder that Cernitin® may be of benefit in treating a variety of medical conditions besides benign prostatic hyperplasia. Human and animal research suggests that Cernitin®:

- Has anti-inflammatory action<sup>4</sup>
- Protects against colds, influenza, and infectious mononucleosis<sup>29</sup>
- Speeds recovery from influenza, prostatitis, and non-specific urethritis<sup>29</sup>
- Accelerates both wound healing and healing of bone fractures in difficult-to-heal situations<sup>29</sup>
- Diminishes the side effects of radiotherapy and cobalt treatment in cancer patients<sup>29</sup>
- Relieves pain and improves mobility in osteoarthritis<sup>29</sup>
- Improves symptoms of rheumatoid arthritis<sup>4</sup>
- Relieves unwanted menopausal symptoms<sup>29</sup>
- Reduces tiredness in children and elderly adults<sup>29</sup>
- Protects against cardiovascular disease<sup>4</sup>
- Inhibits some types of cancer<sup>4</sup>

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### Other Beneficial Phytotherapeutics

Throughout the world, phytotherapies increasingly are used to promote prostate health. For example, in Germany and Austria, physicians prescribe phytotherapy for mild and moderate benign prostatic hyperplasia in 90% of cases. In Italy, phytotherapeutics are prescribed for benign prostatic hyperplasia in 50% of cases.<sup>3</sup> Among these popular phytotherapies for prostate health are saw palmetto, omega-3 fatty acids, nettle root, pygeum, rosemary, and lycopene.

### Saw Palmetto

Saw palmetto is a dwarf palm tree native to southeastern North America. Its medicinal value for relief of prostate gland swelling has been reported since the 1800s.<sup>3</sup> Today, saw palmetto is the most commonly used phytotherapeutic in Europe for managing benign prostatic hyperplasia.<sup>17</sup> More than 7,000 men with benign prostatic hyperplasia have participated in clinical studies evaluating saw palmetto.<sup>17</sup>

Over all, the clinical studies concluded that saw palmetto improves symptoms of benign prostatic hyperplasia, including urinary flow rate, nocturia, painful urination, residual urine, and inflammation.<sup>17</sup> Saw palmetto may produce its effect by lowering levels of DHT in prostate tissue. Animal studies demonstrate that saw palmetto induces apoptosis (programmed cell death), inhibits cell proliferation, and prohibits the action of estrogen in the prostate.<sup>17</sup> Saw palmetto is well tolerated, though gastrointestinal disturbance has been reported in rare cases.<sup>17</sup>

### Omega-3 Fatty Acids (Fish Oils)

Unfortunately, the average American diet is low in omega-3 fatty acids and high in omega-6 fatty acids, the two main classes of polyunsaturated fatty acids in foods. Recent findings suggest that omega-3 fatty acids, such as EPA and DHA from fish oil, may prevent prostate cancer. Scientists studied the association between fish consumption and prostate cancer in more than 6,000 Swedish men.<sup>18</sup> During 30 years of follow-up, men who ate no fish had a two to three times higher rate of developing prostate cancer than those who ate moderate or high amounts of fish. The scientists concluded, "Fish consumption could be associated with decreased risk of prostate cancer."<sup>18</sup>

A low-fat diet supplemented with omega-3 fatty acids from fish oil may prevent the development and progression of prostate cancer and possibly benign prostatic hyperplasia by altering COX-2 expression and prostaglandin production in prostatic tissue.<sup>19</sup> COX-2 is an enzyme that converts omega-6 fatty acids to prostaglandins, which stimulate inflammation and the growth of new blood vessels to feed a growing tumor. The potential for omega-3 fatty acids contained in fish oils to prevent benign prostatic hyperplasia and prostate cancer requires further study, but the preliminary evidence is encouraging.

### Nettle Root

Stinging nettle is an herb that grows in temperate climates worldwide. So named because the plant is covered with "stinging" hairs that can cause skin discomfort after accidental contact, stinging nettle root is an approved medicine in Germany for the treatment of benign prostatic hyperplasia. A number of studies have demonstrated its effects, which include reducing frequent urination, painful urination, nocturia, and urine retention.<sup>20</sup> Nettle root produces its effects by inhibiting prostate cell proliferation induced by the sex hormone binding globulin pathway in the prostate.<sup>21,22</sup> Some researchers believe nettle root relieves the symptoms of benign prostatic hyperplasia without reducing the prostate's enlargement,<sup>20</sup> which may be why nettle root is often combined in formulations with other herbs. Nettle root is well tolerated, though occasional mild gastrointestinal disturbance has been reported.<sup>20</sup>

### Pygeum

Pygeum africanum is a tree found in northern Africa. Its bark extracts have been used throughout Europe for more than 30 years to improve genital-urinary symptoms.<sup>3</sup> A review completed in 2000 evaluated 18 randomized controlled trials of pygeum that involved 1,562 men with benign prostatic hyperplasia.<sup>23</sup> Compared to placebo-treated men, more men using pygeum reported an



improvement in overall symptoms, including nocturia, residual urine volume, and urine flow. Adverse effects due to pygeum were mild and comparable to placebo. The reviewers concluded, "A standardized preparation of *Pygeum africanum* may be a useful treatment option for men with lower urinary symptoms consistent with benign prostatic hyperplasia."<sup>23</sup> Evidence suggests that pygeum produces its preventive and healing effects by inhibiting the division of prostate cancer cells and benign prostatic hyperplasia cells.<sup>24</sup>



From top to bottom: stinging nettle, saw palmetto, and rosemary are three popular phytotherapies used to promote prostate health.

### **Rosemary**

Rosemary, a small, fragrant evergreen shrub, has been reported to inhibit experimental carcinogenesis.<sup>25</sup> Preliminary studies in animals indicate that rosemary has an antimutagenic effect, preventing cancer by reducing the frequency of cell mutation (cancer cells are mutated cells).<sup>26</sup> Rosemary leaf has no known side effects<sup>20</sup> and may have the potential to improve prostate health.

### **Lycopene**

Lycopene is a micronutrient in the family of carotenoids, which give fruits and vegetables their yellow, orange, and red colors. Tomatoes are the best natural source of lycopene, and cooked tomatoes (as in tomato sauce) may be the optimal source because the heating action improves the body's absorption of lycopene. Lycopene can also be consumed as a supplement.

Lycopene's antioxidant activity is at least twice as great as that of beta-carotene. Extensive scientific evidence demonstrates that increased consumption of tomato products and other lycopene-containing foods may reduce the occurrence or progression of prostate cancer.<sup>27</sup> Scientists evaluating 1,872 men with and without prostate cancer discovered that there is a lower risk of prostate cancer in men with higher plasma levels of lycopene.<sup>27</sup> In a smaller study, scientists found that consuming tomato sauce entrees (containing 30 mg of lycopene daily) increased apoptosis in benign prostatic hyperplasia cells.<sup>28</sup> Additional large-scale studies are needed to confirm this exciting finding.

### **Summary**

Flower pollen has been used by millions of men around the world. With the introduction of Cernitin®, men in the US can now obtain the protective effects of flower pollen and use it to counteract the symptoms of benign prostatic hyperplasia.

Considering that the precise cause of benign prostatic hyperplasia remains unknown, it stands to reason that a product such as Cernitin®, which contains several phytotherapies with various mechanisms of action, may be the most effective way to both prevent and treat benign prostatic hyperplasia. With its demonstrated benefits and lack of side effects, Cernitin® is an important addition to the arsenal of products for prostate health.

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