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## The Science Behind our Products

### Horny goat weed (*Epimedium grandiflorum*)

Horny goat weed, or Epimedium, is a Chinese herbal extract known for its vasodilating effects. Recent research clearly demonstrates that the herb's main constituent, icariin, may potentiate the effects of common erectile dysfunction drugs such as sildenafil and vardenafil.<sup>1,2</sup> Studies also suggest that horny goat weed and icariin may have a significant therapeutic effect on erectile dysfunction possibly due to nitric oxide increase.<sup>3,4</sup> In addition, icariin increases circulating levels of testosterone and may be beneficial for treating hypoandrogenism.<sup>5,6</sup>

### Tribulus (*Tribulus terrestris*)

Tribulus is an herbal plant known for its controversial claim to increase testosterone and DHEA levels and improve sexual desire.<sup>7,8</sup> While several studies on humans and animals do not show a direct or indirect influence on androgen production, oral administration of tribulus terrestris extract did show an increase in serum levels of androstenedione and free testosterone.<sup>9,10</sup> In addition, further studies found the herb had a significant improvement on sexual behavior serving as a potent aphrodisiac and a moderate treatment for erectile dysfunction.<sup>11-13</sup> Although the exact mechanism of action is unclear, researchers suspect it's due to a release of nitric oxide rather than androgen production.<sup>14-16</sup>

### Saw palmetto (*Serenoa repens*)

Saw palmetto extract has been used to treat urinary tract symptoms for many years. Scientific evidence suggests that saw palmetto may be just as beneficial as finasteride in terms of treating urinary symptoms of benign prostatic hyperplasia (BPH), without the adverse affects.<sup>17-20</sup> Its mechanism of action is associated with prostatic epithelial contraction and a significant decrease in tissue levels of dihydrotestosterone (DHT).<sup>21</sup>

### Licorice (*Glycyrrhiza glabra*)

Licorice has been widely used as a folk medicine for thousands of years, exhibiting therapeutic properties on the endocrine system.<sup>22-24</sup> Scientific evidence shows that combining licorice extract with anti-inflammatory and anti-ulcer drugs produced significantly better results than when used alone.<sup>25</sup> Moderate doses of licorice show little changes in androgen hormones.<sup>26</sup>



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## Kola Nut (Kola vera)

Kola nut possesses caffeine properties and is valuable as a nerve and heart tonic as well as general antioxidant.<sup>27</sup> Kola nut's increase on locomotor activity is dose dependent.<sup>28</sup> Kola nut extract shows promise in the eradication of prostate cancer cells, and researchers suggest that further studies are warranted.<sup>29</sup>

## Siberian ginseng (Eleutherococcus senticosus)

Siberian ginseng has been around for centuries and used to restore vigor, increase longevity, enhance health, and help the body cope with stress. Several studies suggest that Siberian ginseng could offer immune system support and may play an important role in the treatment of diseases.<sup>30-33</sup> Double blind, placebo controlled studies found that daily doses of Siberian ginseng had a significant improvement in selective memory and well-being in volunteers ranging from ages 36 to 58 years old. Furthermore, Siberian ginseng proved to be safe and effective in improving cognitive function in older volunteers who were hypertensive.<sup>34,35</sup> Siberian ginseng has also been shown to be protective against stress, chronic fatigue and provide beneficial support for the vascular system.<sup>36-41</sup> An extensive review suggests that Siberian ginseng's ability to reduce fatigue and increase concentration is due to its adaptogenic properties.<sup>42</sup>