

## Green Jacket

### Background

Green Jacket ephedra extract-based supplement capsules are a thermogenic, neurotransmitter, and energy boosting formulary designed to positively affect weight management by reducing body fat, regulating dietary cravings, and increasing energy levels. Ephedra acts on the central nervous system and body as a stimulant, closely resembling effects of the natural stress hormone adrenaline. Ephedra also boosts basal metabolic rate (BMR), increasing caloric burn. This product is infused with additional calorie burning agents, e.g., bitter orange (*Citrus aurantium*) which contains several substances associated with metabolic rate stimulation, a thermogenic and neurotransmitter enhancement matrix grounded in natural green tea extract designed to increase metabolism and support focus for training sessions, respectively, and a proprietary Yohimatrix synergistic energy herb blend using Yohimbe (associated with libido increase, especially in men). Additionally, there is an infusion of natural caffeine sources including kulu nut extract, guarana extract, and yerba mate. Always consult a licensed physician prior to modifying or starting any diet, exercise, or supplement regimens.

### Research

There is little clinical data on the comprehensive formulary, however, some of the individual ingredients have received attention in the literature. In a review of the phytochemistry and clinical application of ephedra, among other elements, Tang et al. (2023) suggest the active components of ephedra, e.g., both alkaloid and nonalkaloid parts, promote antioxidant, immunosuppressive, and hypoglycemic properties.<sup>1, 2, 3</sup> Ephedra extracts possess broad clinical applications such as remedies for analgesia, asthma, and rising blood pressure, and recently associated with COVID-19 treatment to ameliorate the symptoms of infection.<sup>1</sup> Jo et al. (2011) found evidence to highlight that ephedra appears to exert influences via abilities to regulate body core temperature, maintain and normalize overall temperature, and keep steady functions of the cardiovascular and circulatory systems (e.g., hemodynamic variables).<sup>4</sup>

Wibowo, Soebadi, & Soebadi (2021) suggest that when combined with other supplements and treatments, Yohimbine may improve the erectile function in ED patients.<sup>5</sup> Lima et al. (2018) found data to support that guarana promotes an increase in energetic metabolism and boosts mitochondrial biogenesis which supports healthy weight management.<sup>6</sup> These findings are mimicked by Torres et al. (2022) who also find anti-aging, antioxidant, and anticancer properties associated with guarana levels, related to positive mitochondrial effects (production site of cellular energy).<sup>7</sup> Hack et al. (2023) states that guarana, associated with natural caffeine content and other bioactive ingredients, may promote faster performance in cognitive tasks without changing accuracy, however it is unknown whether the cognitive improvements are related to caffeine content, bioactive ingredients, or a combination of both.<sup>8</sup>

## Conclusion

Green Jacket ephedra extract-based supplement capsules are designed to promote healthy levels of weight management through dietary control, energy production, and thermogenic mechanisms. This formulary contains several ingredients that have recently gained attention in the literature such as ephedra, yohimbine, and guarana, specifically ephedra and guarana have been associated with ability to regulate blood glucose levels and antioxidant properties, respectively. This product may also promote additional cognitive and sexual performance gains, especially with the infusion of yohimbine which is associated with improvements in erectile function.

## References

- <sup>1</sup>Tang S, Ren J, Kong L, Yan G, Liu C, Han Y, Sun H, Wang X-J. Ephedrae Herba: A Review of Its Phytochemistry, Pharmacology, Clinical Application, and Alkaloid Toxicity. *Molecules*. 2023; 28(2):663. <https://doi.org/10.3390/molecules28020663>.
- <sup>2</sup>Wan JY, Tian YF, Wan HT, Yu L, Zhou HF, Li C, He Y. [Pharmacokinetics of compatible effective components of Mahuang Decoction in febrile rats]. *Zhongguo Zhong Yao Za Zhi*. 2019 May;44(10):2149-2155. Chinese. doi: 10.19540/j.cnki.cjcm.20190125.002. PMID: 31355574.
- <sup>3</sup>Takemoto, H.; Hyuga, S.; Takahashi, J.; Hyuga, S.; Odaguchi, H.; Uchiyama, N.; Maruyama, T.; Yamashita, T.; Hyuga, M.; Oshima, N.; et al. Ephedrine Alkaloids-Free Ephedra Herb Extract, EFE, Has No Adverse Effects Such as Excitation, Insomnia, and Arrhythmias. *Biol. Pharm. Bull.* 2018, 41, 247–253.
- <sup>4</sup>Jo YY, Kim JY, Kim JS, Kwon Y, Shin CS. The effect of ephedrine on intraoperative hypothermia. *Korean J Anesthesiol.* 2011 Apr;60(4):250-4. doi: 10.4097/kjae.2011.60.4.250. Epub 2011 Apr 26. PMID: 21602974; PMCID: PMC3092959.
- <sup>5</sup>Wibowo DNSA, Soebadi DM, Soebadi MA. Yohimbine as a treatment for erectile dysfunction: A systematic review and meta-analysis. *Turk J Urol.* 2021 Nov;47(6):482-488. doi: 10.5152/tud.2021.21206. PMID: 35118966; PMCID: PMC9612744.
- <sup>6</sup>Lima NDS, Teixeira L, Gambero A, Ribeiro ML. Guarana (*Paullinia cupana*) Stimulates Mitochondrial Biogenesis in Mice Fed High-Fat Diet. *Nutrients*. 2018 Jan 31;10(2):165. doi: 10.3390/nu10020165. PMID: 29385074; PMCID: PMC5852741.
- <sup>7</sup>Torres EAFS, Pinaffi-Langley ACDC, Figueira MS, Cordeiro KS, Negrão LD, Soares MJ, da Silva CP, Alfino MCZ, Sampaio GR, de Camargo AC. Effects of the consumption of guarana on human health: A narrative review. *Compr Rev Food Sci Food Saf.* 2022 Jan;21(1):272-295. doi: 10.1111/1541-4337.12862. Epub 2021 Nov 9. PMID: 34755935.

<sup>8</sup>Hack B, Penna EM, Talik T, Chandrashekhar R, Millard-Stafford M. Effect of Guarana (*Paullinia cupana*) on Cognitive Performance: A Systematic Review and Meta-Analysis. *Nutrients*. 2023 Jan 14;15(2):434. doi: 10.3390/nu15020434. PMID: 36678305; PMCID: PMC9865053.

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