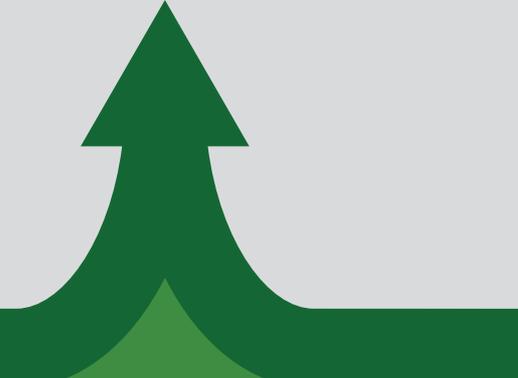


Enhancing Nutrition With Functional Benefits



Food & Beverage

Pairing with the likes of nutrient-dense veggie burgers, dark chocolate and vitamin-rich soft chews, one synergistic adaptogen is elevating the marketplace.

• **CASE
STUDY**

Enhancing Nutrition With Functional Benefits

by Pete Croatto

One of the reliable trends in the natural products industry is the steadily increasing influence of functional foods.

Global sales for these products are expected to exceed US\$255 billion by 2024, fueled by “growing geriatric population, health care costs, consumers’ consciousness towards [sic] their well-being, and changing lifestyle.”¹ As any formulator can attest, there is always room for an ingredient that is nutritious and delicious—or at least palatable when mixed into any number of food or beverage applications. Nobody wants to eat a chocolate bar that conjures memories of high school chemistry.

Ashwagandha root, with more than 4,000 years of medicinal history, was traditionally consumed in a beverage format, but doesn’t have the same history regarding food. That said, the adaptogen’s health reputation and formulation opportunities in this field are growing.

“Every day I see new products with ashwagandha,” said Oliver Ponce, founder of Texas-based Good Seed Burger. “I think this last year, I’ve seen the most. People are getting familiar with it.” He credits the rise in popularity of golden milk as a catalyst behind the awareness.

Ponce is doing his part, using ashwagandha in Good Seed Burger’s Curried Sweet Potato hempseed burger.

“Outside of people looking for clean ingredient decks, they’re looking for superfoods,” he said. “So that added value with an adaptogen, basically we’re raising the bar. Compared to a veggie burger filled with soy, corn and wheat, we have added value with superfoods, nutrient-dense foods and adaptogens like ashwagandha.”



Playing Well With Others

Not just any old ashwagandha will do. Good Superfoods uses KSM-66 Ashwagandha in many of its formulations, including its Superfood Chocolate bars. The reason for using KSM-66 is reliability, said Jennifer Gaudry, senior vice president of research and development (R&D) at the Garden City, Idaho-based company.

The amount of proprietary research proving KSM-66's purity and efficacy is another point of differentiation.

"So many ashwagandhas on the market are really just inferior," she said. "You don't even know what you're getting, and I think that's a dangerous thing. For us, having that security and that peace of mind of knowing exactly what we're getting, and having the evidence to back that up, I think that's huge for us as a development company and as consumers of our own product."

Since ashwagandha's benefits cover so many areas—sports performance, energy, stamina—Gaudry said the company "can use it across the board." Good Superfoods' products cover a large audience. Its chocolate bar line caters to the general consumer wanting a healthy bar with a little something extra. "You can eat a dark chocolate bar and everyone knows that's good for them," Gaudry said. "So what we do is enhance that chocolate by adding functional ingredients like the KSM-66—it's really that extra boost of nutrition." Good Superfoods' lines also target key areas such as metabolism, stress and brain health.

Similarly, Ponce said his award-winning burgers satisfy the cravings of more than vegans and vegetarians. Meat reducers, in general, also want to know what's going in their bodies.

Ashwagandha, he said, has "hit almost a conventional place where people who are taking vitamins and supplements understand it or they're getting to know it." Good Seed Burger's core customer, Ponce said, exercises and eats organic food. As the head of the household, they are also the ones headed to the grocery store.

"We added that extra value in there with our superfoods like hemp and chia," Ponce said. "We just believed that it really can be in products. When we got started, our advisors told us not to do that, that we were crazy. Then, within a few months after we launched, so did anything from muffins to chocolate and other food items that actually contained ashwagandha."

Good Superfoods has used KSM-66 for about three years, Gaudry said. Its line of bars resonates, she believes, because they strike consumers' desire to eat something that is delicious and good for them. KSM-66's high profile also provides a foothold for manufacturers.





“They’ve done such a good job of really marketing and setting that product aside that people look for it now,” Gaudry said. “I think they recognize the logo—which we are sure to put on our package—and the name.”

The ingredient also plays well with others. “In general, any extract that we use in a product tends to have bitter notes,” Gaudry said. Ashwagandha is no exception: it has a very strong aftertaste. KSM-66 is a concentrated ashwagandha extract, so it provides a huge advantage. “You’re getting more of the functional benefit of that extract,” she noted, “as opposed to having to put in three to four times as much as a diluted extract.” And, of course, having chocolate as a delivery system—coupled with the institutional experience of knowing what flavors and products work—does wonders.

It’s clear that taste is driving the rise of functional foods. According to a report from Mintel, U.S. sales of all bars (snack, nutrition and protein) grew 30 percent between 2009 and 2014, to \$6.2 billion.² The research firm also provides this fascinating wrinkle from an online survey: half of respondents drink sports drinks when they are not working out.³

In Colorado, Lewis Graves, the president of Hi-5 Nutrition, which makes Further Fuel Energy Boosting Soft Chews, said ashwagandha is “leading the charge” in cleaner energy-boosting products.

Graves commented: “Ashwagandha has become one of the very few products recognized for amazing energy-boosting and recovery attributes while helping to maintain, and even increase, focus at the same time. We haven’t even discussed the positive impact ashwagandha has on stress and stress management. The timing couldn’t be better for this nearly 5,000-year-old product. We live in an era when energy drinks/boosters are primarily stimulant-based, which is proving to have serious side effects on health and, in some cases, can even cause death.”

Further Fuel’s products—yes, more are coming, Graves affirmed—target health-conscious adults ages 18 to 49. The demographics split evenly male and female, he said. Graves uses KSM-66 because it’s the market leader and has the research to support the claims.

The ingredient anchors “most, if not all, of [our] formulations,” Graves said. But beyond that, he added, KSM-66 enhances other actives.

“I guarantee you will start seeing more and more studies conducted on the synergistic benefits of adding ashwagandha,” he said. “It has honestly helped us produce an efficacious product that keeps consumers coming back. B12, B complexes and L-tyrosine are all great actives for



contributing to energy production, but when you add ashwagandha to the mix, amazing things happen.”

Graves points to his chews’ 25 mg of green-tea based caffeine. With the addition of ashwagandha, customers sensitive to caffeine feel a difference. They don’t feel as jittery or the sudden need to use the bathroom, generally caused by caffeine’s diuretic effects.

“This is really exciting stuff because caffeine in moderation can increase not only energy but also alertness and focus,” Graves said.

Science Is the Marketing

What makes KSM-66 Ashwagandha stand out lies on the technical side. “They use a traditional extraction method versus an alcohol ester extraction,” Graves explained. “Alcohol ester or chemical extraction severely impacts taste, which results in flavor masking having to be used. I think other companies are starting to realize this and revamping their methods.”

Then there is the research. Gaudry said the company refers to six studies involving KSM-66. The one she finds most impressive involves memory.

In a prospective, randomized, double-blind, placebo-controlled study, 50 healthy adults received a 300 mg capsule with KSM-66 or placebo for eight weeks. The primary efficacy parameters were improvements in immediate memory, general memory and working memory as assessed through the Wechsler Memory Scale III (WMS-III/IND). The ashwagandha group ended up showing greater improvement than the placebo group for immediate memory and general memory.⁴

Two studies meet the needs of the active crowd Gaudry and Graves’ products court. Graves counts himself in that camp.

“I like the studies on physical performance the most because I’m an ex-athlete who is always looking for ways to improve my physical performance, and my body won’t tolerate products that are high in sugar, caffeine or taurine,” he said.

The first appeared in the *Journal of the International Society of Sports Nutrition* in 2015. In an eight-week, randomized, prospective, double-blind, placebo-controlled clinical study, 57 male subjects (18 to 50 years old) with little experience in resistance training were randomized into treatment (29 subjects) and placebo (28 subjects)

groups. Treatment group subjects consumed 300 mg of KSM-66 twice daily.

Both groups underwent resistance training for eight weeks; measurements were repeated at the end of the training. The primary efficacy measure was muscle strength. The secondary efficacy measures were muscle size, body composition, serum testosterone levels and muscle recovery. Muscle strength was evaluated using the 1-RM load for the bench press and leg extension exercises. Muscle recovery was evaluated by using serum creatine kinase level as a marker of muscle injury from the effects of exercise.

Ashwagandha
Improves Memory,
Cognitive Function

OUTCOME:
At the end of the eight weeks, for the participants taking ashwagandha:

- Immediate and general memory subsets improved significantly.
- Spatial span – a part of working memory – was significantly improved.
- Time for the Trail Making Test was significantly reduced, showing improved information processing speed.
- Executive function overall and in subsets improved significantly.
- All the changes reported were statistically significant at eight weeks.
- The sustained attention test showed significant improvement.
- No adverse events were seen, and subjective assessment of tolerability was excellent.

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The results were staggering. The ashwagandha group had “significantly greater increases in muscle strength” on the bench press and leg-extension exercises. They had great muscle size increase in the arms and chest, plus the ashwagandha group had a much greater reduction of exercise-induced muscle damage.⁵

The second study was also published in 2015, this time in *AYU* (An International Quarterly Journal of Research in Ayurveda). Cardiorespiratory endurance in 50 healthy, athletic adult men and women was assessed by measuring the oxygen consumption at peak physical exertion (VO₂max) levels during a shuttle run test. The World Health Organization’s (WHO) self-reported Quality of Life (QOL) questionnaire was also used. Twenty-four subjects received KSM-66. There was a greater increase from baseline (P < 0.0001) in the mean VO₂max with KSM-66 compared to placebo at eight weeks (4.91 and 1.42, respectively) and at 12 weeks (5.67 and 1.86 respectively). The QOL scores for all subdomains significantly improved in the ashwagandha group at 12 weeks compared to placebo (P < 0.05).⁶

The calming effect Graves touts in ashwagandha has a precedent, including a study published in the July-September 2012 issue of *The Indian Journal of Psychological Medicine*.

Sixty-four subjects with a history of chronic stress engaged in relevant clinical examinations and laboratory tests. These included a measurement of serum cortisol and standard stress-assessment questionnaires. The subjects were randomized to either the placebo control group or a 300 mg capsule of KSM-66 twice a day over 60 days. Subjects received telephone calls on day 15, day 30 and day 45 to check for treatment compliance and adverse reactions. The KSM-66 group exhibited a significant reduction (P<0.0001) in scores on all the stress-assessment scales on day 60, relative to the placebo group. The serum cortisol levels also were substantially reduced (P=0.0006) in the ashwagandha group, relative to the placebo group.⁷

Another study, published in the *Journal of Evidence-Based Complementary and Alternative Medicine*, featured 52 subjects under chronic stress receiving 300 mg of KSM-66 or placebo twice daily. Primary efficacy measures were the Perceived Stress Scale and Food Cravings Questionnaire. Secondary efficacy measures were the Oxford Happiness Questionnaire,

Ashwagandha for Cardiorespiratory Endurance

OUTCOME: Over the course of the study and at conclusion, in adults taking ashwagandha:

- VO₂max increased by **4.91%** at eight weeks and by **5.67%** at 12 weeks
- Quality of life (QOL) measures were positively affected, with social relationships up **9.46%** from baseline and physical health up **7.6%** from baseline.
- Environmental impact on QOL also increased significantly by the end of the study
- No changes were seen in vital parameters such as pulse rate, blood pressure or respiration at rest

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Ashwagandha for Stress & Anxiety

OUTCOME: After eight weeks, adults taking ashwagandha:

- PSS score was reduced **44%**, Serum cortisol levels were reduced **27.9%**
- GHQ-28 scores were markedly reduced by **72.9%**, with greatest reduction in the severe depression domain at **79.3%** decline.
- DASS domain scores dropped **71.6%**, with the biggest decrease in the depression domain at **77.0%**
- All changes were statistically significant compared to placebo.
- Researchers concluded: "High-concentration full-spectrum Ashwagandha root extract improves an individual's resistance toward stress and thereby improves self-assessed quality of life."
- IMPACT: Clinical depression costs over \$51 billion in absenteeism from work

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Ashwagandha: The Stress/Weight Management Connection

OUTCOME: At the end of the eight weeks, participants taking ashwagandha had a:

- 22%** decrease in mean serum cortisol levels
- 3%** reduction in body weight, compared to only 1.4% in the placebo group
- On the primary outcome measured by PSS score, subjects taking ashwagandha exhibited a marked reduction in the mean score on the PSS, dropping from 20.3 to 13.6, posting a significantly greater improvement than the placebo group.
- FCQ mean scores for Planning, Positive Reinforcement, Negative Reinforcement, Lack of Control, Emotion and Environment were all reduced in the ashwagandha group by a statistically significant amount, suggesting the subjects rejected the use of food as a method to cope with stress.
- Researchers concluded: "Ashwagandha root extract"

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Three-Factor Eating Questionnaire, serum cortisol, body weight and body mass index (BMI). Subjects were assessed at the start and at four and eight weeks. The treatment with ashwagandha resulted in significant improvements in both measures.⁸

In Graves' view, KSM-66 has done more than provide solid research and peace of mind on the manufacturing side. The company reminds him of Nordic Naturals' arrival and how the company "did more to educate, inform and promote [fish oils] than anyone else." KSM-66, he said, is doing the same with ashwagandha. It shows. He has never seen this kind of awareness. ●

Pete Croatto is a freelance writer based in Ithaca, New York. He was the community manager for Natural Products INSIDER's Supplement Perspectives blog from 2011 to 2015.

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