

F R O S T & S U L L I V A N

FROST & SULLIVAN BEST PRACTICES AWARD

SPORTS NUTRITION AND HEALTH
INGREDIENTS - EUROPE

New Product Innovation 2019

nektium



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Background and Company Performance

Industry Challenges

Caffeine is commonly used as a nootropic to improve cognitive function, mental acuity, and focus, and as a physical performance enhancer. According to a draft opinion of the European Food Safety Authority (EFSA), caffeine intake of no more than 400 mg per day does not raise any safety concerns for adults. But an EFSA survey conducted in 2016 found that in 7 out of 13 Western European countries, almost one-third of adults ingested more than that amount each day. Surveys have also shown a staggering increase in the demand for energy drinks. For example, a British Soft Drinks Association report showed that the consumption of energy drinks in the United Kingdom increased from 463 million liters in 2010 to 679 million liters in 2016, with adolescents (age 11–17) being the major consumers.

Demand for coffee or other caffeine-based products is on the rise globally. A recent Pennsylvania State University study showed that 85% of the US population consumes at least one caffeinated beverage per day. Among Asian countries, Japan and South Korea have been ranked among the top 50 coffee consumers by the International Coffee Organization and Euromonitor Statistics. Japan has also registered strong growth for energy and sports drink consumption in the past few years.

These statistics have led researchers and government organizations to study caffeine's negative health effects. Studies have associated excessive levels of caffeine with side effects such as anxiety, headaches, nausea, insomnia, and restlessness; some have also indicated a higher risk of hypertension and cardiovascular diseases.

Some governments have taken steps to control the use of caffeinated products. In 2018, for example, South Korea banned the use of coffee in schools; similar discussions are happening in the United Kingdom. In light of this, caffeine alternatives that offer similar nootropic and ergogenic effects without any side effects have gained considerable traction, especially in sports nutrition. A number of herbal and plant extracts, such as ginseng and gingko, claim to be caffeine alternatives, but studies showing their effects on performance have not been validated. On the other hand, synthetic compounds being used for sports performance or cognitive enhancement may cause side effects when taken in high doses and generally are not recommended for everyday use.

Nutraceutical manufacturers are responding to consumer demand for clean labels—products with simple, easy-to-recognize, and natural ingredients. A sustainable supply chain for natural extracts, however, remains a challenge due to the seasonal nature of most botanical sources. Ingredient suppliers that can offer naturally derived, sustainable products that can improve both physical and mental performance and are safe for everyday use by all ages could disrupt the sports nutrition and health ingredients industry and gain an obvious edge in this space.

New Product Attributes and Customer Impact

Well Positioned to Match Customer Needs

Nektium Pharma, founded in 1997 as PoliNat and headquartered in Spain, is a manufacturer of a number of branded and standardized botanical extracts and offers its products globally through distributors. The company, which became Nektium in 2017, has representation in more than 32 countries. Nektium's business model is based on evidence-based, scientific validation of indigenous knowledge and has a strong focus on innovation.

Nektium in 2018 launched a novel, patent-pending *Mangifera indica* (i.e., mango leaf) extract, Zynamite®, at Vitafoods Europe, a global nutraceutical industry convention. The extract is derived from mango leaves and is composed of 60% mangiferin, a polyphenol that has been shown to have significant ergogenic and nootropic properties including rapid onset of mental activation; faster reaction time; better mental and physical performance; and dramatic increases in peak power, mean power output, VO₂ max (a measure of oxygen consumption during intense exercise), muscle oxygen utilization, and brain oxygenation. The caffeine alternative has been shown to be an inhibitor of catechol-O-methyltransferase (COMT), which also has anti-addictive potential. Frost & Sullivan found during its industry research that other companies have developed novel herbal or plant-based nootropic agents, but none offer the complete combination of benefits that Zynamite® does. Nektium's strong patent portfolio with to date three pending patents (e.g., [US20180021397A1](#)) for different attributes of the mangiferin extract protects its first mover advantage in the space.

To meet the changing demands of the nutraceutical industry, which in the last few years has seen a dramatic shift towards evidence-based science, Nektium conducts comprehensive clinical and preclinical studies to back its claims. The academic and CRO studies also act as a second line of defense in preventing competitors from replicating the company's achievements.

The company already has conducted four clinical studies on Zynamite® and is in the midst of a fifth. Two that were conducted in collaboration with the University of Las Palmas de Gran Canaria were randomized, double-blind placebo control studies involving 30 young, physically active athletes to assess the effect of Zynamite® on sports performance in humans; two others in collaboration with the University of Giessen in Germany assessed the ingredient's role in boosting mental energy. The first sports performance study showed that Zynamite® in combination with luteolin or quercetin resulted in a 5% to 7% increase in mean power output compared to placebo; in a similar clinical setting, caffeine only showed an increase of 3% when compared to placebo. The second sports study showed an astounding increase of 10.2% and 19.4% in the power output for Zynamite® combinations after extreme anaerobic fatigue state represented by ischemia-reperfusion.

The company showed that the central nervous system activation mechanism of Zynamite® as checked in in-vivo functional electroencephalogram is similar to caffeine.

Frost & Sullivan considers this to be the key differentiator that gives Zynamite® an edge over key natural extracts being used for sports performance enhancement.

Zynamite® has shown no side effects among users. A 90-day toxicology study conducted by the company found no adverse effects even at a very high daily dosage of 2,000 mg per kilogram of body weight. Nektium's product development team said this is because Zynamite® acts as a weak COMT inhibitor, without significant antagonist activity on adenosine receptors or PDE4, which are targets of caffeine. Frost & Sullivan found that even the widely used nootropic botanical extracts *Panax ginseng* and *Ginkgo biloba* have side effects if taken at very high dosage.

Supply chain sustainability is a common requirement for end-product manufacturers: mango leaves are available year-round; competing ingredients often are derived from seasonal raw materials. The natural product is free from any sort of doping and meets clean label requirements, which Frost & Sullivan consider to be of utmost importance to satisfy today's health-conscious consumers. Zynamite® can be formulated into powders, tablets, chewing gums, gummies, chocolates, and beverages to accommodate a variety of consumer preferences.

Reliability and Quality

Nektium has developed a proprietary technology for concentrating mangiferin from mango leaves, and excluding allergens. The production process is a trade secret, which limits potential competition. Frost & Sullivan believes that Nektium's main advantage as an ingredient manufacturer is that its entire operation is under one roof, giving the company full control of all processes and strict quality standards.

To ensure the quality of the raw material, Nektium has rigorous procedures in place to confirm the material's biological identity. Foremost, mango leaf samples are sent to the Royal Botanical Garden in Madrid for analysis using DNA barcoding to ensure the botanical identity followed by testing for the concentration of mangiferin using highly sensitive, ultra-high performance liquid chromatography, which also assesses the levels of pesticide residues and heavy metals. The raw material also is inspected macroscopically to ensure that it conforms to reference plant material identity.

In the nutraceutical industry, quality and batch consistency is of prime importance. Nektium's state-of-the-art purification technology limits concentrations of pesticides or other residues and ensures that the relative concentration of bioactive compounds is maintained across different batches. Nektium's production facility has EU-GMP certification for the manufacture of nutraceutical ingredients, and the quality control laboratory runs approximately 50 protocols, 20 procedures, and more than 32 quality analyses across the entire production cycle to ensure batch consistency. Frost & Sullivan considers Nektium's multiple quality and consistency initiatives to be industry best practices.

Enhancing Customer Satisfaction by Focusing on Purchase and Service Experiences

As part of its efforts to provide an exemplary customer experience, Nektium actively gathers direct feedback from end users. It offers product samples at trade shows, and evaluates the performance of Zynamite® based on real-life experiences of athletes who have been using the product since its launch. A Frost & Sullivan analyst interviewed one marathon runner who said that Zynamite® improved his performance and endurance more than other sports enhancers or activators and presented no side effects even when consumed daily.

Nektium's innovative marketing strategy goes beyond promoting the ingredient and the science behind it. The company also offers the final formulations and finished product samples in the form of tablets and chocolates to potential customers to help them visualize the various end-product types and plausible application areas, and gives them an opportunity to test the product directly. Guiding customers through the entire value chain—from raw material to ingredient to possible finished product—is a best practice in this industry; Frost & Sullivan believes that the approach will help Nektium secure additional customers globally.

Zynamite® has been tested for its quality and performance attributes by giant food and beverage manufacturers in Europe and Asia. In Japan, companies in general have very high research standards and do not use a new product without first conducting their own internal trials and quality tests.

Conclusion

As consumption of caffeinated products increases, especially to improve athletic performance, the demand for caffeine replacements that can offer a similar ergogenic effect without causing any side effects also is on the rise. To cater to changing demands, Nektium Pharma's novel natural extract, Zynamite®, has been shown in studies to offer significant ergogenic and nootropic properties including faster reaction time and better mental and physical performance. The product is a safe and sustainable alternative to caffeine, with nutritional benefits that are superior to competing natural extracts. Frost & Sullivan also found Nektium's customer support initiatives to be superior.

With its strong overall performance, Nektium Pharma has earned Frost & Sullivan's 2019 New Product Innovation Award.

Significance of New Product Innovation

Ultimately, growth in any organization depends on continually introducing new products to the market and successfully commercializing those products. For these dual goals to occur, a company must be best in class in three key areas: understanding demand, nurturing the brand, and differentiating from the competition.



Understanding New Product Innovation

Innovation is about finding a productive outlet for creativity—for consistently translating ideas into high-quality products that have a profound impact on the customer.

Key Benchmarking Criteria

For the New Product Innovation Award, Frost & Sullivan analysts independently evaluated 2 key factors—New Product Attributes and Customer Impact—according to the criteria identified below.

New Product Attributes

- Criterion 1: Match to Needs
- Criterion 2: Reliability
- Criterion 3: Quality
- Criterion 4: Positioning
- Criterion 5: Design

Customer Impact

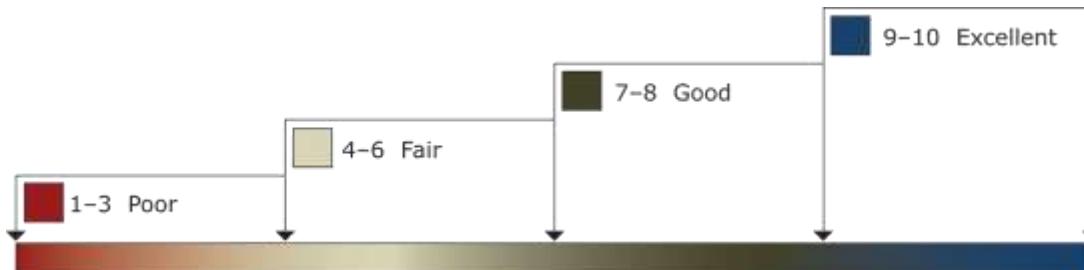
- Criterion 1: Price/Performance Value
- Criterion 2: Customer Purchase Experience
- Criterion 3: Customer Ownership Experience
- Criterion 4: Customer Service Experience
- Criterion 5: Brand Equity

Best Practices Award Analysis for Nektium Pharma

Decision Support Scorecard

To support its evaluation of best practices across multiple business performance categories, Frost & Sullivan employs a customized Decision Support Scorecard. This tool allows research and consulting teams to objectively analyze performance according to the key benchmarking criteria listed in the previous section, and to assign ratings on that basis. The tool follows a 10-point scale that allows for nuances in performance evaluation. Ratings guidelines are illustrated below.

RATINGS GUIDELINES



The Decision Support Scorecard considers New Product Attributes and Customer Impact (i.e., the overarching categories for all 10 benchmarking criteria; the definitions for each criterion are provided beneath the scorecard). The research team confirms the veracity of this weighted scorecard through sensitivity analysis, which confirms that small changes to the ratings for a specific criterion do not lead to a significant change in the overall relative rankings of the companies.

The results of this analysis are shown below. To remain unbiased and to protect the interests of all organizations reviewed, Frost & Sullivan has chosen to refer to the other key participants as Competitor 1 and Competitor 2.

<i>Measurement of 1-10 (1 = poor; 10 = excellent)</i>			
New Product Innovation	New Product Attributes	Customer Impact	Average Rating
Nektium Pharma	9.8	9.1	9.45
Competitor 1	8.9	8.8	8.85
Competitor 2	8.6	8.8	8.70

New Product Attributes

Criterion 1: Match to Needs

Requirement: Customer needs directly influence and inspire the product's design and positioning.

Criterion 2: Reliability

Requirement: The product consistently meets or exceeds customer expectations for consistent performance during its entire life cycle.

Criterion 3: Quality

Requirement: Product offers best-in-class quality, with a full complement of features and functionalities.

Criterion 4: Positioning

Requirement: The product serves a unique, unmet need that competitors cannot easily replicate.

Criterion 5: Design

Requirement: The product features an innovative design, enhancing both visual appeal and ease of use.

Customer Impact

Criterion 1: Price/Performance Value

Requirement: Products or services offer the best value for the price, compared to similar offerings in the market.

Criterion 2: Customer Purchase Experience

Requirement: Customers feel they are buying the optimal solution that addresses both their unique needs and their unique constraints.

Criterion 3: Customer Ownership Experience

Requirement: Customers are proud to own the company's product or service and have a positive experience throughout the life of the product or service.

Criterion 4: Customer Service Experience

Requirement: Customer service is accessible, fast, stress-free, and of high quality.

Criterion 5: Brand Equity

Requirement: Customers have a positive view of the brand and exhibit high brand loyalty.

Decision Support Matrix

Once all companies have been evaluated according to the Decision Support Scorecard, analysts then position the candidates on the matrix shown below, enabling them to visualize which companies are truly breakthrough and which ones are not yet operating at best-in-class levels.



Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan analysts follow a 10-step process to evaluate award candidates and assess their fit with select best practices criteria. The reputation and integrity of the awards are based on close adherence to this process.

STEP	OBJECTIVE	KEY ACTIVITIES	OUTPUT
1 Monitor, target, and screen	Identify award recipient candidates from around the world	<ul style="list-style-type: none"> Conduct in-depth industry research Identify emerging industries Scan multiple regions 	Pipeline of candidates that potentially meet all best practices criteria
2 Perform 360-degree research	Perform comprehensive, 360-degree research on all candidates in the pipeline	<ul style="list-style-type: none"> Interview thought leaders and industry practitioners Assess candidates' fit with best practices criteria Rank all candidates 	Matrix positioning of all candidates' performance relative to one another
3 Invite thought leadership in best practices	Perform in-depth examination of all candidates	<ul style="list-style-type: none"> Confirm best practices criteria Examine eligibility of all candidates Identify any information gaps 	Detailed profiles of all ranked candidates
4 Initiate research director review	Conduct an unbiased evaluation of all candidate profiles	<ul style="list-style-type: none"> Brainstorm ranking options Invite multiple perspectives on candidates' performance Update candidate profiles 	Final prioritization of all eligible candidates and companion best practices positioning paper
5 Assemble panel of industry experts	Present findings to an expert panel of industry thought leaders	<ul style="list-style-type: none"> Share findings Strengthen cases for candidate eligibility Prioritize candidates 	Refined list of prioritized award candidates
6 Conduct global industry review	Build consensus on award candidates' eligibility	<ul style="list-style-type: none"> Hold global team meeting to review all candidates Pressure-test fit with criteria Confirm inclusion of all eligible candidates 	Final list of eligible award candidates, representing success stories worldwide
7 Perform quality check	Develop official award consideration materials	<ul style="list-style-type: none"> Perform final performance benchmarking activities Write nominations Perform quality review 	High-quality, accurate, and creative presentation of nominees' successes
8 Reconnect with panel of industry experts	Finalize the selection of the best practices award recipient	<ul style="list-style-type: none"> Review analysis with panel Build consensus Select recipient 	Decision on which company performs best against all best practices criteria
9 Communicate recognition	Inform award recipient of recognition	<ul style="list-style-type: none"> Present award to the CEO Inspire the organization for continued success Celebrate the recipient's performance 	Announcement of award and plan for how recipient can use the award to enhance the brand
10 Take strategic action	Upon licensing, company is able to share award news with stakeholders and customers	<ul style="list-style-type: none"> Coordinate media outreach Design a marketing plan Assess award's role in strategic planning 	Widespread awareness of recipient's award status among investors, media personnel, and employees

The Intersection between 360-Degree Research and Best Practices Awards

Research Methodology

Frost & Sullivan's 360-degree research methodology represents the analytical rigor of the research process. It offers a 360-degree view of industry challenges, trends, and issues by integrating all 7 of Frost & Sullivan's research methodologies. Too often companies make important growth decisions based on a narrow understanding of their environment, resulting in errors of both omission and commission. Successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. The integration of these research disciplines into the 360-degree research methodology provides an evaluation platform for benchmarking industry participants and for identifying those performing at best-in-class levels.

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS



About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, helps clients accelerate growth and achieve best-in-class positions in growth, innovation, and leadership. The company's Growth Partnership Service provides the CEO and the CEO's growth team with disciplined research and best practices models to drive the generation, evaluation, and implementation of powerful growth strategies. Frost & Sullivan leverages nearly 60 years of experience in partnering with Global 1000 companies, emerging businesses, and the investment community from 45 offices on 6 continents. To join Frost & Sullivan's Growth Partnership, visit <http://www.frost.com>.