B2B

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Emerging Supplement Ingredients 2026 /
Global Trends in Omega-3 Ingredients /
Lemon Balm in Sleep Support and Healthy Aging /
Advanced CBD Formulations / Challenges and Difficulties
of Small-Scale Cosmetic Producers in Practice Part 2

Editor's Word

This issue examines the ingredients, formulation strategies, and market insights shaping the future of nutraceuticals and cosmetics as we move through 2025 and toward 2026. Today's innovation is increasingly defined by scientific validation, personalization, and sustainable sourcing.

We explore emerging supplement ingredients for 2025, advanced CBD formulations, and marine bioactives such as fucoidans, alongside a global overview of omega-3 formulation and processing challenges. Healthy aging remains a key theme, with features on BCM-95® curcumin, lemon balm for sleep support and longevity, and next-generation joint health solutions. Beyond supplements, this issue highlights microbiome innovation in oral care, monk fruit sustainability achievements, and practical insights for small-scale cosmetic producers.

Looking ahead, we share 2026 wellness growth predictions and a curated B2B events calendar to support informed decision-making across the industry.

Thank you for your continued trust and collaboration.

Best regards,

Daria Šurić,
EDITOR-IN-CHIEF

Bimonthly digital magazine for industry professionals in health, nutrition and cosmetics sector

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www.nmc-magazine.com
info@nmc-magazine.com

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Cvjetna cesta 11, 10000 Zagreb, Croatia
Mob: + 385 91 68 12 444
darmell@protonmail.com
www.dar-mell.com

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Content

Emerging Supplement Ingredients 2025

Global B2B trade shows in 2025 - from Vitafoods Europe to SupplySide West Global and Health Ingredients Frankfurt - underscored a clear industry focus: healthspan and longevity, metabolic wellness, gut/microbiome support, cognitive and mood enhancers, and beauty-from-within. Consumer demand for science-backed solutions in these areas is surging, and brands are racing to deliver formulae that balance trendy ingredients with solid nutritional science.

AUTHOR:
NMC editorial team

Across the shows, exhibitors highlighted ingredients and botanicals reflecting these trends. Key examples include advanced collagen peptides for skin and joint health, prebiotic fibers and postbiotics for digestion and immunity, adaptogenic nootropics for stress and focus, and natural antioxidants and peptides for skin radiance and hair health. Below, we survey the top ingredients making waves in 2025 and explain why each is in the spotlight.

Healthspan and longevity ingredients

Healthy aging has become a key innovation theme, with ingredient development increasingly aimed at extending healthspan rather than just lifespan. Throughout the exhibition floor, suppliers showcased bioactives targeting cellular senescence, chronic low-grade inflammation, mitochondrial function, and age-related nutrient deficiencies - crucial biological processes linked to functional decline over time.

Antioxidant systems, mitochondrial-support compounds, and agents that promote joint and bone health are foundational elements of longevity-focused formulations. Multiple companies introduced integrated solutions targeting inflammatory burden and cellular resilience. In contrast, others highlighted lipid-based bioactives such as tocotrienols, gera-

nylgeraniols, and cetylated fatty acids for musculoskeletal and skin support in aging populations. Prebiotic fibers and immune-modulating ingredients were also prominently featured, reflecting the increasing recognition of the gut – immune - metabolic axis as a key factor in healthy aging. Additionally, carotenoids and beta-glucans were highlighted for their roles in supporting visual, cognitive, and immune functions throughout life.

Collagen peptides remain a key area of innovation, with their role evolving from just providing structural protein support. Emerging clinical data increasingly highlight specific collagen fractions as metabolically active compounds. Notably, collagen-based ingredients are now backed by evidence showing they stimulate incretin hormones such as GLP-1 and GIP, suggesting a potential role in postprandial glucose regulation alongside their traditional benefits for connective tissue health. Undenatured collagen types remain recommended for joint health in both human and companion animal markets.

Overall, these developments underscore a broader industry shift toward positioning nutrients as components of integrated longevity toolkits. For ingredient suppliers and formulators, differentiation is increasingly driven by clinically substantiated mechanisms, multi-system benefits, and relevance to age-related metabolic and inflammatory pathways - signaling a maturation of the healthspan category from general wellness claims to biologically targeted, evidence-informed solutions.

Metabolic health and GLP-1–driven innovation in nutrition

GLP-1 receptor agonists have emerged as a significant external driver of innovation in the metabolic health and weight-management sectors. At SupplySide Global, GLP-1–related discussions extended beyond pharmaceuticals, influencing ingredient positioning, formulation strategies, and product development priorities across the nutrition value chain. As noted by SPINS analysts, GLP-1–associated weight-loss solutions currently dominate industry attention, prompting ingredient suppliers to reassess how nutritional interventions can align with this therapeutic paradigm.

Instead of positioning supplements as direct alternatives to pharmacological treatments, many ingredient developers are increasingly emphasizing complementary roles - targeting glycemic control, insulin sensitivity, satiety, stress regulation, and maintaining lean mass. Ingredients such as berberine, tocotrienols, citrus flavonoids, and collagen-derived peptides are presented within this framework, often supported by delivery technologies designed to enhance dispersibility, bioavailability, or consumer adherence. This reflects a broader shift toward formulation-driven differentiation, where functionality and compatibility with GLP-1 therapy are key value propositions.

Adaptogenic botanicals and stress-modulating compounds also featured prominently, underscoring the growing recognition of the interplay among neuroendocrine stress pathways, sleep, and metabolic regulation. From a product development perspective, these ingredients are increasingly positioned as part of multi-mechanistic solutions rather than single-claim actives, aligning with the complexity of metabolic dysfunction in real-world populations.

At a strategic level, the emergence of GLP-1–specific nutritional use cases is reshaping portfolio development across both supplement and functional food categories. Major food and nutrition companies are already exploring nutrient-dense, protein-forward, and fiber-enriched formats tailored to GLP-1 users, while supplement brands are integrating glucose - modulating and gut-hormone - supporting actives into existing weight-management platforms. This convergence suggests that future growth will favor products designed to support metabolic

health across pharmacological and lifestyle interventions, rather than relying on traditional "weight loss" positioning alone.

Gut and microbiome innovations

Gut health remains a central innovation platform in the nutrition industry, increasingly recognized as a foundational determinant of immune, metabolic, and neuropsychological outcomes. Industry analyses, including SPINS data, indicate sustained growth in consumer interest in gut-linked benefits, with dietary fiber remaining a primary entry point. Reflecting this demand, exhibitors at Vitafoods and SupplySide emphasized a broad spectrum of prebiotic, probiotic, and postbiotic solutions designed to address both digestive and systemic health applications.

Prebiotic innovation emphasizes source diversification and functional specificity. Citrus-derived fibers, soluble β-glucans, and clean-label carbohydrate alternatives are positioned to go beyond digestive regularity, addressing gut barrier integrity, immune modulation, and formulation performance. Several ingredients are backed by emerging clinical data linking selective fermentation profiles to improvements in intestinal permeability and immune markers, highlighting a shift toward evidence-based differentiation in the fiber market.

On the probiotic and postbiotic front, strain specificity and targeted indications were key themes. Ingredient developers highlighted formulations supported by clinical validation for defined use cases, including women's urogenital health, menopausal support, immune resilience, and stress–sleep modulation. Postbiotics, in particular, were positioned as offering improved stability and regulatory clarity while retaining biologically relevant immune and neuroactive effects.

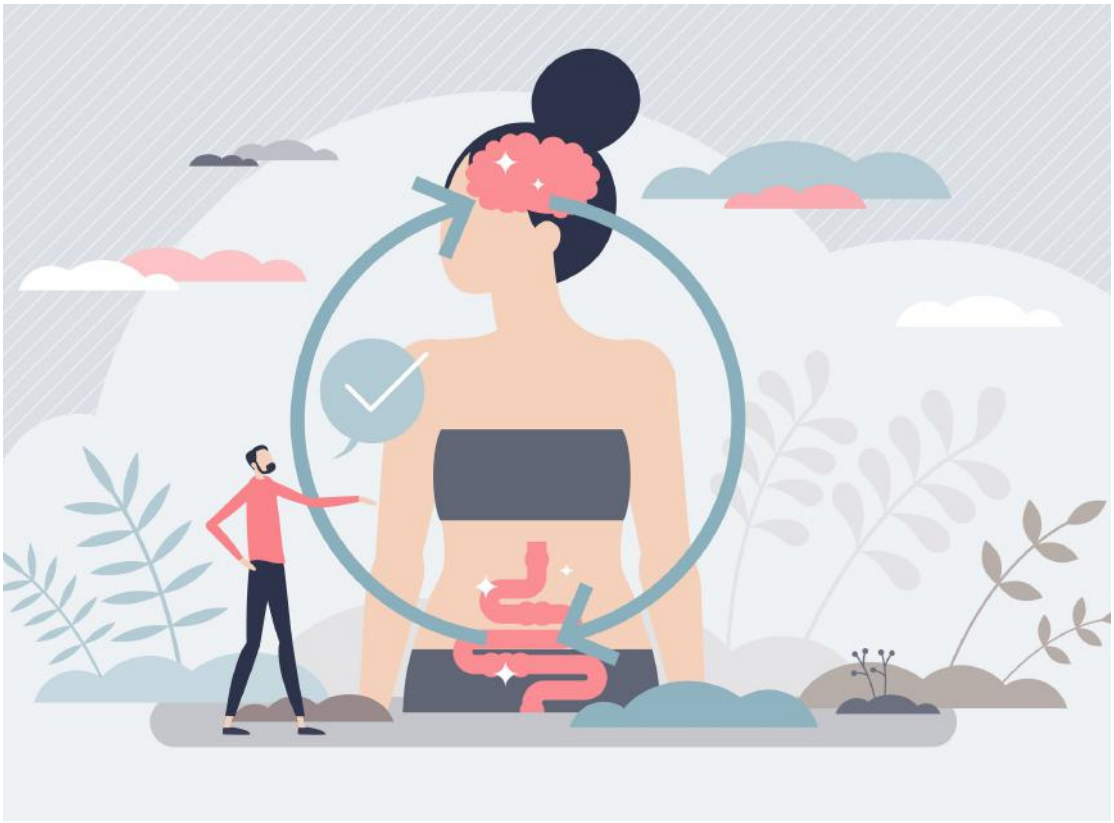
Polyphenols and fiber–polyphenol combinations also featured prominently, reflecting growing recognition of their bidirectional interaction with the gut microbiota. These ingredients were positioned for applications spanning gut and urinary tract health, inflammatory modulation, and metabolic support, aligning with expanding research linking microbiome composition to systemic inflammation and cardiometabolic risk.

Collectively, these developments illustrate a maturation of the gut health category from generalized digestive support toward targeted, mechanism-based microbiome modulation. For ingredient suppliers and formulators, innovation is increasingly defined by clinically substantiated functionality, regulatory-aligned claims - particularly within established fiber health frameworks - and compatibility with multi-benefit positioning across immune, metabolic, and mental health domains.

Cognitive, mood, and stress support

Cognitive performance, emotional resilience, and stress regulation remain central pillars of mental wellness innovation, with ingredient development increasingly focused on clinically substantiated, multi-functional solutions. SPINS market analyses indicate accelerated growth in nootropic and relaxation-oriented categories, with compounds such as L-theanine, ashwagandha, and magnesium emerging as key drivers. These ingredients are increasingly positioned to address overlapping outcomes, including focus, stress adaptation, sleep quality, and mood stability.

At SupplySide, exhibitors emphasized standardized botanical extracts and optimized mineral forms supported by human clinical data. Fermented or bio-



enhanced L-theanine formats were presented for stress modulation. At the same time, low-dose botanical blends combining bacopa and ashwagandha were positioned to support dual benefits for stress reduction and sleep parameters. Proprietary ashwagandha extracts with defined withanolide profiles were showcased in endurance and wellness applications, reflecting continued interest in adaptogens with reproducible efficacy and dose efficiency.

Beyond established botanicals, innovation extended to novel plant extracts and differentiated mineral complexes. Mango leaf extracts standardized for polyphenolic content were shown to improve mental processing speed, focus, and mood in controlled trials. Magnesium L-threonate gained attention for its ability to cross the blood–brain barrier, supporting cognitive health claims in both beverage and supplement formats. Mushroom-derived ingredients also featured prominently, with extracts rich in ergothioneine positioned for antioxidant support linked to mental function and longevity, alongside vitamin D2 sources produced via fungal fermentation.

Taken together, these developments indicate a convergence toward "mind–body" formulation strategies, in which cognitive, emotional, and stress-related outcomes are addressed through bioactive nutrients that modulate neurochemical balance, oxidative stress, and cellular resilience. For ingredient suppliers and brand owners, differentiation increasingly depends on clinically validated mechanisms, standardized actives, and formulation versatility across multiple delivery formats, signaling continued maturation of the mental wellness category from experiential claims toward evidence-based cognitive support.

Beauty-from-within - skin, hair, and wellness

"Beauty-from-within" emerged as a dominant cross-category theme at Vitafoods and SupplySide, reflecting sustained consumer interest in nutritional strategies to support skin appearance, hair quality, and overall dermal health. Industry data point to continued growth in supplements positioned for complexion, elasticity, and radiance, driving innovation in collagen, bioactive peptides, antioxidants, and plant-derived compounds with documented skin-related mechanisms.

Collagen-based ingredients remained central, with positioning extending beyond structural support to encompass broader aspects of skin aging and metabolic health. In addition to their roles in joint and connective tissue integrity, specific collagen fractions are emerging as influencing postprandial glucose regulation and gut–hormone signaling, indirectly linking metabolic balance to skin aging. Alongside traditional animal-derived collagen sources, suppliers highlighted sustainability-driven marine collagen sources and animal-free alternatives that replicate collagen functionality through amino acid and peptide profiles.

Antioxidant and botanical actives also featured prominently, aligned with mechanisms that reduce oxidative stress, improve microcirculation, and modulate inflammation in the skin. Polyphenol-rich extracts derived from olive, citrus, berries, and maritime pine bark were positioned to support skin resilience, elasticity, and vascular function, with some supported by clinical data on skin appearance and body composition–related outcomes. Carotenoids such as astaxanthin, including newer fermented or bioenhanced formats, were highlighted for photoprotection, anti-aging potential, and ocular benefits, reinforcing their relevance across beauty and wellness applications.

Hair and nail health innovations were largely framed around micronutrient adequacy and structural protein support. Plant-based keratin alternatives, bioavailable silica sources, and conventional vitamins and minerals were presented as complementary components within holistic beauty formulations. However, fewer high-profile launches were associated with these segments.

Overall, the category's evolution reflects a growing convergence between cosmetic and nutritional sciences. For ingredient suppliers and formulators, differentiation increasingly depends on clinically supported mechanisms, cross-benefit positioning

(beauty, metabolic health, and gut function), and alignment with emerging research on the gut–skin and gut–hormone axes. As a result, "beauty-from-within" is maturing from a trend-driven concept into a more integrated cosmeceutical nutrition platform grounded in systems biology and evidence-based formulation.

Driving forces: science, demand, and regulation

Across all major ingredient categories, scientific evidence and clinical validation have become central to innovation strategies. At recent trade events, many suppliers highlighted new human data to support differentiated positioning, especially in appetite regulation, metabolic support, gut health, immune function, cognitive performance, and beauty-related outcomes. Clinical evidence is increasingly viewed not just as a marketing tool but as a necessary step for credible ingredient launches. This reflects a broader industry shift toward a "nutrients-as-therapy" paradigm, where efficacy expectations align more closely with those traditionally seen in pharmaceuticals or medical nutrition.

Consumer demand is the second major factor influencing innovation priorities. Industry stakeholders consistently emphasize the need to adapt quickly to emerging trends while maintaining scientific rigor. Retail and shelf data continue to show steady growth in categories such as plant proteins, targeted micronutrients, postbiotics, adaptogens, and metabolic health solutions. Weight-management products, in particular, are shifting toward adjunct or complementary roles alongside GLP-1–based pharmacotherapies, while core nutrition categories -including multivitamins, dietary fiber, and protein - are gaining renewed importance. At the same time, beauty and healthy-aging solutions are being embraced by younger consumers, driven by social media influence and a broader self-care mindset focused on prevention rather than correction.

Regulatory dynamics are also playing a supportive role, though cautiously. Updated guidance in both the EU and the US is gradually clarifying acceptable structure - function claims for botanicals, fibers, and microbial ingredients, encouraging more targeted, mechanism-based innovation. Simultaneously, sustainability and clean-label considerations are increasingly influencing ingredient selection, sourcing practices, and delivery formats, boosting demand for traceable, natural, and responsibly produced inputs. Advances in delivery technologies - such as liposomal and encapsulated systems - are being developed with greater focus on global quality standards and safety compliance, reflecting increased scrutiny alongside performance expectations.

Overall, the 2025 trade fair landscape shows a convergence around key innovation pillars. Healthspan and longevity are shifting from niche concepts to main drivers of product development. Metabolic and weight management strategies are being reimagined with GLP-1 therapies, combining traditional botanicals with new peptide-based approaches. Gut and microbiome health have become almost universal, supported by increasingly precise prebiotic, probiotic, and postbiotic solutions. Cognitive health and stress resilience continue to grow through nootropic and adaptogenic ingredients that often overlap with immune and energy support. Meanwhile, beauty from within has become a well-established category, blending peptides, antioxidants, and micronutrients within holistic wellness frameworks.

For B2B stakeholders - including ingredient suppliers, formulators, and brand owners - the strategic priority is clear: innovation must be rooted in clinical science, aligned with changing consumer expectations, and designed to harness cross-category synergies. The ingredients gaining prominence at Vitafoods, SupplySide, and Hi Europe are those that successfully incorporate all three aspects, pointing to the future of nutraceutical R&D.

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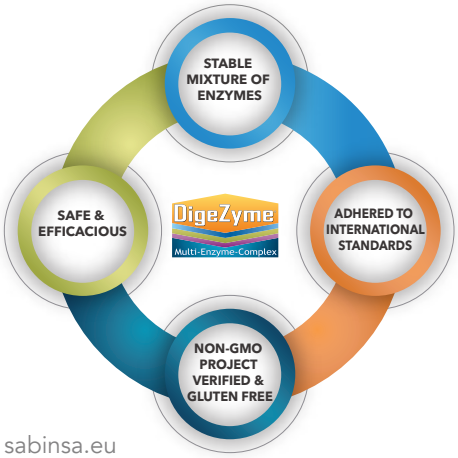

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Advanced CBD Formulations: Personalized Approaches in Hypertension and Sex-Specific Absorption Insights

This review examines cannabidiol (CBD) as a non-psychotropic cannabinoid with growing clinical and nutraceutical relevance. It highlights regulatory-approved CBD medicines and focuses on novel lipid-based formulations designed to improve oral bioavailability. Results from two randomized crossover studies demonstrate enhanced absorption, sex-dependent pharmacokinetics, and CYP450 genotype - related metabolic differences using a lipophilic CBD formulation. Improved cardiovascular outcomes and minimal adverse effects were observed. The findings emphasize the importance of personalized dosing, advanced delivery systems, and improved professional education on CBD use.

AUTHOR:
Ana Batinić,
M.pharm, PhD in Toxycology

Cannabidiol (CBD) is a bioactive cannabinoid of the plant *Cannabis sativa* L. Unlike tetrahydrocannabinol (THC; D9-tetrahidrocannabinol), CBD has non-psychotropic effects and is consumed as a food supplement by millions of people today[1,2]. There are almost 1200 studies, reported on ClinicalTrials.gov, exploring the potential indications of CBD on Parkinson's disease, stroke, inflammations, epilepsy, chronic pain and many psychiatric conditions[3-6]. Previous studies have demonstrated that the oral bioavailability of CBD is very low[7,8]. Methods for accelerating the transport of ingested CBD to the bloodstream and preventing first-pass (hepatic) metabolism have been created through the use of inventive dietary supplements with various lipid formulations[9-11]. As interest in cannabidiol (CBD) as an important ingredient for health and wellbeing grows, innovative pharmaceutical compa-

nies are focused on creating more individualized and bioavailable delivery systems.

In Croatia, the Agency for Medicines and Medical Products (HALMED) approved the cannabidiol-based drug Epidyolex, which was also approved by the Food and Drug Administration (FDA) and the European Medicines Agency (EMA), with the availability of all relevant data on the drug, including interactions with other drugs[12-14]. CBD is registered in the European Union under the name Epidyolex, but in the USA it is officially known as Epidiolex. Marinol® and Syndros® (both contain dronabinol), and Cesamet® (nabilone) are synthetic cannabinoids approved by the FDA. Dronabinol and nabilone are indicated for nausea and vomiting, mainly in malignant diseases. The EMA has also approved Sativex® (oral spray, solution) containing nabiximol (THC:CBD=1:1), indicated for spasticity in multiple sclerosis. This paper reports on two randomized, placebo-controlled, crossover studies that assessed the effects of a new lipophilic oral CBD formulation (DehydraTECHTM2.0 CBD) on hypertensive participants. Important results include CYP450-genotype-dependent metabolism, sex-based pharmacokinetic variations, and improved early cardiovascular effects. These findings are extremely important for nutraceutical makers exploring efficacy and safety.

The patented process that dehydrates long-chain fatty acids high in oleic acid with CBD, reduces the metabolism of the first pass through the liver. Therefore, the DehydraTECH™2.0 CBD formulation has increased and accelerated bioabsorption of the active content. The effects of the unique DehydraTECH™2.0 CBD formulation were evaluated and compared with the effects of generic CBD in our initial study (HYPER-H21-1)[15].

The primary indication of increased CBD concentration was found to be a decrease in heart rate, with the bioavailability-enhanced formulation demonstrating a greater impact than generic CBD. Additionally, the DehydraTECH™2.0 CBD formulation demonstrated a superior impact on the initial lowering of MAP (mean arterial pressure) and diastolic blood pressure. Due to CBD's improved absorption, nearly every participant ingesting DehydraTECH™2.0 CBD displayed higher concentrations of CBD in their plasma and urine samples.

Based on gender, our study's findings revealed variations in CBD metabolism. In urine samples taken 180 minutes after ingesting DehydraTECH™2.0 CBD, men's CBD concentrations were significantly greater than women's.

Six of the 24 participants in the initial study were receiving medication therapy (levothyroxine, lorazepam, diazepam, celecoxib, and acetylsalicylic acid).

Their samples' CBD concentration values significantly differ from the mean values. We conclude that the metabolism of CBD can be affected by the consumption of these prescription drugs (as well as all other drugs metabolized by the same CYP P450 enzymes), and that this should be considered when calculating the optimal dosage of CBD.

During or following the research, no significant adverse effects have been noticed or reported. The only minor adverse effects were noted: relaxation with drowsiness and diarrhea after taking generic CBD, and relaxation without drowsiness after taking DehydraTECH™2.0 CBD.

To observe the relationship between the achieved concentration of CBD in the samples and the metabolism with the genetic variability of cytochrome P450, the study included the analysis of polymorphisms of CYP2C9*2, CYP2C9*3, CYP2C19*2, CYP2C19*3, CYP2C19*17 and CYP3A4 genes. After ingesting the DehydraTECH™2.0 CBD formulation, participants with a slow/weak metabolizer (engl. poor metabolizer-PM) at CYP2C9*2*3 enzyme showed increased CBD concentration in the plasma in 180 minutes.

For the first time, during a 12-week period, the concentrations of CBD and metabolites were analyzed in our second study (HYPER-H21-4)[16].

Men had higher concentrations of CBD than women did, according to an analysis of the CBD concentrations in plasma at the first time point of testing, which was measured 2.5 weeks following CBD ingestion. At the next time point (after 5 weeks), the concentration of CBD was higher in women than in men. Even when they stopped taking their CBD medication and entered a two-week washout period, the study revealed noticeably greater CBD concentrations in women than men.

CBD accumulates more easily in a lipophilic environment because of its high lipophilicity. This slows down the elimination process and affects the cumulative concentration.

Women had much larger percentages of body fat than men did, but their percentages of muscle tissue and water were significantly lower. The increased levels of CBD in women's plasma at later test periods are presumably explained by this.

Unlike men, who did not have a single sample that was positive for CBD or its metabolites, the woman's plasma revealed that it contained CBD even 50 days after the last consumption of the CBD preparation. Men had a lower percentage of fat tissue than women, and since there was less CBD accumulation in fat tissue, there was more CBD in the bloodstream. In addition, CBD is eliminated in the urine, excreting from the body faster in men than in women. Compared to men, women had significantly higher levels of 7-COOH-CBD metabolites at all time points.

The concentrations of CBD and its metabolites in the samples did not differ significantly from the results for subjects who were not receiving therapy for hypertension, including angiotensin-converting enzyme-ACE inhibitors, calcium channel blockers, and thiazide diuretics.

Our clinical studies were complemented by a survey assessing the understanding and attitudes of Croatian physicians, pharmacists, and students in Split, Zagreb, and Osijek toward the therapeutic use of cannabidiol (CBD)[17]. The pharmacological understanding of pharmacists, physicians, students, patients, and recreational users about cannabis and medications derived from cannabinoids is inadequate, according to earlier research done in various nations[18-22].

The majority of participants claimed that they needed more information regarding CBD, indicating that both groups lacked knowledge about the substance.

Students were found to consume CBD at a considerably higher rate than physicians and pharmacists. Compared to university students, a much higher proportion of doctors and pharmacists read scien-

tific articles on CBD.

Even though they have considerable knowledge about the benefits, side effects, and interactions of CBD, medical professionals commonly do not prescribe or promote it.

We believe that, apart from a lack of knowledge, the explanation is the high price of the product. This is why medical professionals generally think that health insurance should cover the cost of this prescription drug.

CBD is rapidly establishing itself as a premium functional ingredient in the dietary supplement industry. Despite strong consumer interest, healthcare practitioners in Croatia report insufficient formal education, which limits their readiness to recommend CBD products. Formulations targeting stress management, sleep support, and inflammation remain the most in demand, while differentiation through extraction technology, product stability, and certified purity will be essential for competitive positioning in the nutritional supplement market.

Contact: ana.batinic05@gmail.com

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Diving Into Fucoidans: The Marine Ingredients Catching the Attention of Europe's Most Innovative Formulators

Eco-conscious consumers are driving global demand for natural, efficacious and sustainably sourced products. Formulators seeking innovative ingredients that tick all these boxes are increasingly turning to bioactive marine compounds. Fucoidans, natural extracts from brown seaweeds, are rapidly gaining traction as premium ingredients across the nutraceutical, functional food and beverage, skincare and medical device categories.

AUTHOR:
Rod Shelley,
Business
Development
Manager, Marinova

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Fucoidans explained

Fucoidans are non-gelling, fucose-rich polysaccharides found naturally in brown seaweeds. These highly bioactive compounds play both a structural role, being a key component of cell walls, and a defensive one. Fucoidans protect the seaweed against water-borne pathogens, UV light and other environmental challenges.

Fucoidans have different chemical structure and bioactivities depending on the species of seaweed from which they have been derived and the method by which they have been extracted. Fucoidans from the species *Undaria pinnatifida* (commonly known as wakame) and *Fucus vesiculosus* (commonly known as bladderwrack) are amongst those that have been most widely studied. High purity extracts from these species are characterised using validated assays that quantify components including molecular weight and the type and content of their structural sugars.

More than 4,000 scientific studies have now been published exploring the efficacy of fucoidan extracts in a diverse range of human health indications and clinical settings. Based on this research, these natural compounds have become sought-af-

ter ingredients for nutraceutical formulations targeting gut and digestive health, immune support and healthy inflammatory responses. These multifunctional benefits also see them included in leading healthy ageing and general wellness products.

Nutraceuticals: Spotlight on gut health

In recent years, rapidly expanding scientific research has demonstrated the benefits of fucoidans to gut and digestive health. This research has fuelled the inclusion of fucoidans in market-leading dietary supplements. Fucoidans have shown benefits ranging from balancing the composition of gut flora through to inhibiting the adhesion of harmful bacteria to gastric cells[1,2]. A recent study utilising faecal samples from healthy human donors showed that supplementation with high purity *Undaria pinnatifida* fucoidan enriched colonic microbial diversity *in vitro*[3]. Species richness and species evenness were positively enhanced in both the distal and proximal colon. Fucoidan supplementation significantly increased levels of the short-chain fatty acid butyrate, known to assist in the maintenance of the gut barrier, stimulate gut motility and modulate both innate and adaptive immune responses.

Functional foods & beverages

Leveraging this mounting scientific evidence, fucoidan extracts are now manufactured specifically for functional food and beverages applications[4]. The mild flavour profiles and superior solubility of these speciality extracts make them highly versatile and easy to formulate with[5]. These cost-effective ingredients are designed for supplement powders, super greens formulas, nutritional snacks and fortified beverages. Additionally, seaweed extracts are also available containing fucoidan with marine mannitol, a natural low-calorie monosaccharide that imparts a subtle sweet taste[5].

Skincare

Fucoidans are well established in the skincare category where they are utilised in a wide range of topical applications. High purity, certified organic extracts have clinically proven soothing and protecting properties[6]. These benefits include improvement in skin wrinkles, a reduction in skin redness and an increase in skin elasticity[7]. Fucoidans can also be co-extracted with marine polyphenols to deliver exceptional antioxidant and skin brightening benefits[7]. Further research suggests a future for fucoidans in balancing skin microbiome. In an *ex vivo* model, fucoidans have been shown to inhibit the adhesion of the atopic dermatitis associated bacterium, *Staphylococcus aureus*, and reduce the adhesion of the acne associated bacterium, *Cutibacterium acnes*[8].

Medical devices

Extensive research has been undertaken on the barrier effect and wound healing potential of fucoidans. These benefits, combined with antioxidant benefits and ability to support a healthy inflammatory response, has resulted in fucoidans being utilised in innovative medical devices that support gastroesophageal conditions[9]. Fucoidans have also been well studied for their immunomodulatory properties, including boosting immune response, and enhancing the activity of key immune cells and immune markers[10,11]. Fucoidans have been incorporated into respiratory support products based on research showing their ability to reduce allergic responses, block the entry of viruses into cells, and inhibit the adhesion of viruses to host cells[12–14].

Fucoidan extraction

Fucoidan quality can vary significantly depending on the quality of the source seaweed and the method of extraction. Manufacturers of fucoidan have traditionally utilised solvents, such as ethanol, to precipitate the fucoidan polymer from crude seaweed extracts. Fucoidans manufactured in this way can suffer many shortfalls, including contaminants being present in the final extract, inconsistent quality and compromised chemical integrity. Most importantly, their bioactivity may be diminished.

Contemporary green chemistry extraction technology overcomes these problems[6]. Mild, aqueous extraction processes avoid the use of harsh solvents and ensure the resulting fucoidan extracts

that remain unadulterated in chemical structure and free from solvent residues.

Regulatory acceptance

Fucoidan specialist Marinova Pty Ltd produces the world's only high purity, certified organic fucoidans with global regulatory acceptance. Maritech® organic fucoidans are manufactured in ISO 9001, ISO 14001, HACCP and GMP accredited facilities in Australia[6]. Providing confidence to consumers and formulators alike, the portfolio has FDA-notified GRAS approval and EU Novel Foods authorisation, in addition to regulatory approvals in a range of other global jurisdictions. Maritech® ingredients are USDA NOP and EU organic certified.

Sustainable sourcing

The world's leading fucoidan suppliers demonstrate a sustainable and transparent supply chain that is regularly and independently audited. These leading suppliers have closely aligned their operations with the UN's Sustainable Development Goals, including the hand-harvesting of seaweeds from pristine ocean waters, the ongoing monitoring of wild seaweeds by teams of experienced resource scientists, fucoidan production utilising renewable energy sources, and the capture and purposeful reuse of by-product.

Meeting market growth

With escalating consumer demand for preventative health solutions, rising disposable incomes and growing interest in healthy ageing, fucoidan is well placed to meet market demand. Based on extensive scientific research, global regulatory approvals and a sustainable supply chain, it is worthy of the attention of future-focused formulators and savvy brand owners.

Further details on Maritech® organic fucoidans can be found at: **www.maritechfucoidan.com.au**

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Global Trends in Omega-3 Ingredients: Formulation and Processing Challenges

The global omega-3 market is growing steadily due to aging populations, preventive healthcare trends, and broad acceptance of EPA and DHA as essential nutrients. Innovation is driven by sustainable sources such as algae, premium concentrates, and improved traceability. Delivery formats are expanding beyond capsules into gummies, powders, and functional foods through advanced encapsulation technologies. Ongoing challenges include oxidation, taste, dose density, and bioavailability. Long-term success will depend on combining scientific credibility, technological innovation, sustainability, and regulatory compliance.

AUTHOR:
Daria Šurić, Mpharm, univ.spec.

Market context and strategic drivers

The global omega-3 category continues to expand, supported by demographic, clinical, and structural market drivers. Forecasts project sustained growth over the next decade, driven primarily by aging populations, a growing emphasis on preventive healthcare, and broad professional acceptance of EPA and DHA for cardiovascular, cognitive, and inflammatory health. Omega-3s are increasingly perceived by consumers as essential nutrients rather than optional supplements, reinforcing baseline demand across life stages.

The diversification of sales channels further supports market expansion. Direct-to-consumer platforms, personalized nutrition models, and subscription services are enabling premiumization and more targeted product offerings. At the upper end of the market, specialty formats - including phospholipid-bound omega-3s, ultra-concentrated EPA/DHA oils, and life-stage–specific formulations (prenatal, cognitive, pediatric) - are driving innovation and margin growth.

Source innovation and premiumization

A pronounced shift toward alternative and sustainable omega-3 sources is reshaping the supply landscape. Algae-derived DHA and EPA are the fastest-growing segment, meeting consumer demand for vegan, allergen-free, and traceable ingredients while reducing reliance on marine ecosystems. Major ingredient suppliers' investment in algal production capacity reflects confidence in long-term scalability and regulatory acceptance.

In parallel, krill oil continues to occupy a premium niche due to its phospholipid-bound omega-3s and naturally occurring astaxanthin, positioning it on bioavailability and lower dose requirements. Additional interest is emerging in fermented and seed-derived oils, reflecting broader experimentation with non-traditional lipid sources to mitigate marine supply risks.

Premiumization strategies increasingly emphasize purity, concentration, and delivery efficiency. Advances in purification and concentration technologies now enable high-EPA/DHA oils with 50–70% actives, enabling dose compression and improved consumer compliance. Certification schemes and sustainability credentials have become integral to differentiation, particularly in markets where retailer requirements and NGO scrutiny are intensifying.

Delivery format innovation

While softgel capsules remain the dominant dosage form because of dosing precision and oxidative stability, omega-3 delivery formats are rapidly diversifying. Liquid, emulsion, powder, chewable, and gummy formats are expanding access for populations such as children, older adults, and individuals with pill fatigue or swallowing difficulties.

From a formulation perspective, gummies and chewables represent both a high-growth opportunity and a technical challenge. Omega-3 oils' poor solubility and sensory characteristics require advanced encapsulation and separation strategies to maintain stability, taste, and texture. Microencapsulation, multilayer systems, and delayed-release technologies are increasingly used to enable higher oil loading while preserving product quality.

Powdered omega-3 formats - typically produced via spray-drying or oil-in-matrix systems - are gaining traction in sports nutrition, functional foods, and personalized nutrition. Nano-emulsified and micellar systems enable clear beverages and "water-compatible" formulations that were previously impractical for lipophilic fatty acids.

Formulation and processing constraints

Omega-3 oils pose persistent technical challenges related to oxidation, sensory stability, and bioavailability. Their high degree of unsaturation makes them particularly vulnerable to oxidative degradation, necessitating stringent control throughout processing, packaging, and shelf life. Encapsulation, antioxidant systems, inert-gas handling, and light-protective packaging are now standard components of omega-3 product design.

Taste and odor masking remain critical barriers to consumer acceptance, especially in non-capsule formats. Formulators increasingly combine encapsulation with natural flavor systems and carrier matrices to minimize off-notes and avoid chemical interactions that could accelerate degradation.

Bioavailability has emerged as a key differentiator. Conventional ethyl-ester omega-3s require dietary fat for optimal absorption, limiting effectiveness in low-fat diets or during fasting. Phospholipid-based delivery systems and micellar technologies address this limitation by facilitating self-assembly into absorbable structures within the gastrointestinal tract. These approaches not only enhance uptake but also expand the range of viable applications, including low-fat and aqueous formats.

Dose density imposes an additional constraint, particularly in gummies and functional foods. Achieving clinically relevant EPA/DHA levels in small serving sizes requires highly concentrated oils, optimized fillers, and, in some cases, multilayer or compartmentalized designs.

Sustainability, traceability, and supply risk

Sustainability considerations are now central to omega-3 sourcing decisions. Wild fish stocks face growing pressure from overfishing, climate variability, and regulatory intervention, contributing to supply volatility and cost fluctuations. Industry reports highlight the risk of a sustained supply–demand imbalance, reinforcing the strategic importance of diversified sourcing.

Traceability and certification are now non-negotiable for many buyers. Retailers, brand owners, and institutional customers increasingly require detailed documentation of species, origin, harvest method, and chain of custody, along with third-party sustainability certifications. In response, suppliers are investing in transparent reporting systems, circular production models, and carbon-neutral or low-impact manufacturing practices.

TABLE 1 Biotechnological Innovation

INNOVATION	DESCRIPTION
Advanced encapsulation	Use of spray-dried microcapsules, alginate beads, liposomes, and protein complexes in beverages, bars, and powders. These protect oils, control release, and effectively mask taste.
Phospholipid / micellar delivery	New concentrates (e.g., PL+, algal polar-lipid oils) leverage natural lecithins to form micelles in the gut, improving absorption even on low-fat diets. Enables cold-mix shots and "skinny" formulations without added fat.
Precision fermentation	Research into engineered yeast and plants (e.g., transgenic canola, yeast strains) that produce EPA/DHA. Not yet mainstream but promising for scalable, controlled omega-3 production.
Sustainable extracts	Advances in extraction/purification (molecular distillation, chromatography) create ultra-pure, low-odor oils. Pharmaceutical-grade EPA/DHA (USP or pharmacopoeia certified) now target medical and infant nutrition markets.

Biotechnological innovation

To address both sustainability and performance constraints, innovation is accelerating across the omega-3 value chain. Alternative bioproduction methods - including microalgae cultivation and precision fermentation - are gaining momentum as scalable, controllable sources of EPA and DHA. Closed-loop systems that use renewable inputs and industrial byproducts illustrate how omega-3 production aligns with broader ESG objectives.

Advances in encapsulation, phospholipid delivery, and purification technologies are enabling higher-purity, lower-odor oils suitable for medical nutrition, infant formulas, and advanced functional foods. Although some fermentation-based approaches remain at pre-commercial or early-scale stages, they could represent a long-term disruption to traditional marine-based supply models (Table 1).

Regulatory landscape

Regulatory frameworks continue to shape formulation and communication strategies. In the United States, omega-3 products are limited to quantitative declarations and structure–function claims, while nutrient-content claims remain prohibited. In contrast, the European Union permits a broader range of authorized health claims for EPA and DHA, provided compositional and dosage criteria are met.

Quality and safety standards are tightening globally, with increased scrutiny of oxidation markers, contaminants, and label accuracy. Industry-led certification programs and anticipated traceability requirements are reinforcing the need for robust quality management and documentation throughout the supply chain.

Strategic implications for B2B stakeholders

For ingredient suppliers and brand owners, differentiation in the omega-3 category increasingly hinges on a combination of scientific substantiation, technological sophistication, and supply-chain credibility. Clean, certified sourcing, advanced delivery systems, novel dosage formats, and transparent sustainability narratives are viable pathways to premium positioning.

At the same time, the category faces structural risks stemming from resource constraints, regulatory scrutiny, and emerging competitive technologies. Companies that proactively invest in alternative sources, diversify their supply, and align product development with evolving regulatory and consumer expectations are best positioned for long-term resilience.

In summary, the omega-3 ingredient landscape is shifting from a commodity-driven market to a technologically intensive, sustainability-constrained innovation space. Success will favor players that integrate formulation science, bioavailability optimization, and traceable sourcing into cohesive, evidence-based value propositions.

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Omega-3 Supplements Market Size Set to Reach US$ 17.08 Billion by 2032, Driven by Rising Demand for Heart, Brain, and Immune Health | by DataM Intelligence

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Algae Omega-3 Ingredients Market Size And Share Report, 2032

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Meet the omega-3 startup that grows microalgae from upcycled whisky byproducts

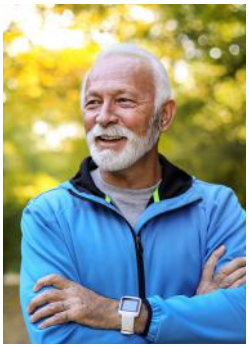
https://www.vitafoodsinsights.com/biotech-innovations/meet-the-omega-3-startup-that-grows-microalgae-from-upcycled-whisky-byproducts

FDA Releases Small Entity Compliance Guide on Omega-3 Fatty Acids Final Rule | FDA

https://www.fda.gov/food/hfp-constituent-updates/fda-releases-small-entity-compliance-guide-omega-3-fatty-acids-final-rule

BCM-95® – The Science-Backed Healthy Ageing Ingredient

Ageing is inevitable, but the way we age is increasingly shaped by science, innovation, and the choices consumers make. For today's ageing global population, the demand is clear: more than just longer life, people want healthier years - defined by mobility, cognition, vitality, and independence.



The World Health Organization (WHO) defines healthy ageing as "the process of developing and maintaining the functional ability that enables well-being in older age." Translating this into nutritional innovation, the opportunity for scientifically validated solutions has never been greater. By 2050, adults aged 60+ will make up more than 20% of the global population - a demographic shift where vitality becomes the ultimate competitive advantage.

In this rapidly expanding segment, curcumin stands out as one of the most recognised natural solutions for healthy ageing. Backed by clinical evidence for its antioxidant and anti-inflammatory effects, curcumin is strongly associated with supporting longevity, joint health, cognitive performance, and cardiovascular function. Yet, conventional curcumin extracts are limited by low bioavailability.

BCM-95® – the next generation of curcumin

BCM-95® is the patented, clinically validated curcumin formulation redefining bioavailability and efficacy. Developed from 100% turmeric, BCM-95® combines curcumin with turmeric essential oil, standardised to 45% Ar-turmerone, to create a unique, patented synergy. This innovative formulation achieves approximately 700% higher absorption compared to conventional curcumin extracts.

The differentiator: a proven mechanism of action

At the core of BCM-95® lies a distinctive mechanism:

- Inhibition of P-glycoprotein (Pgp): Turmerones in BCM-95® block Pgp, a cellular protein that restricts curcumin transport, ensuring more curcumin reaches target tissues.
- Blood-Brain Barrier Penetration: One of the few curcumin formulations clinically shown to cross into the brain, opening pathways for cognitive support solutions.

Proven science, proven market leadership

- Protected by 42 global patents for innovation and efficacy
- Backed by 92 scientific publications, including 46 human clinical studies
- Demonstrated 3.5x higher ORAC value than standard curcumin
- Reinforced by $2+ million in R&D investment and 4+ years of validation
- Supported by 20 years of legacy in the nutraceutical market
- Trusted with 200 million+ doses annually, and available in 70+ countries worldwide

Driving opportunity in healthy ageing markets

With healthy ageing supplements consistently outpacing the broader supplement category - especially in leading markets such as the U.S. - BCM-95® is positioned as a gold-standard, clinically substantiated healthy ageing ingredient. Its multi-benefit profile supports product innovation across categories, including:

- Joint and mobility health
- Cognitive performance and mood
- Cardiovascular function
- Immune support
- General anti-ageing and vitality

BCM-95® – your partner in healthy ageing innovation

For nutraceutical brands and manufacturers, BCM-95® offers unmatched differentiation: a patented, highly bioavailable curcumin formulation trusted worldwide and clinically validated to address the core challenges of ageing.

In today's marketplace, consumers don't just seek more years - they demand better ones. With BCM-95®, brands can deliver science-backed healthy ageing solutions that empower consumers to age with strength, clarity, and confidence.

BCM-95® isn't just curcumin - it's the healthy ageing ingredient that helps your products stand out in an increasingly competitive global market.

Arjuna Natural

Arjuna Natural Pvt Ltd
Desom P O, Aluva - 683102, Kerala, India
https://arjunanatural.com/
connect@arjunanatural.com

Lemon Balm (*Melissa officinalis* L.) in Sleep Support and Healthy Aging

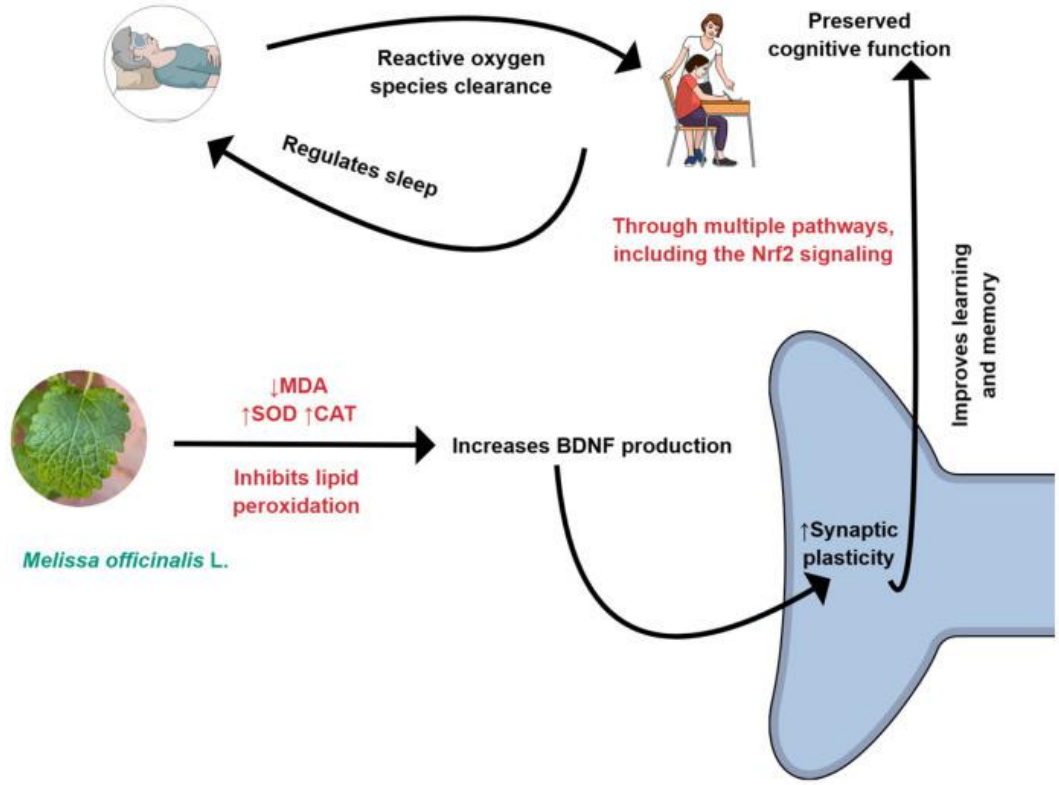
***Melissa officinalis* L. is traditionally used to alleviate nervous tension and sleep disturbances, with growing evidence supporting its relevance for healthy aging. Its effects are primarily linked to antioxidant activity and inhibition of GABA transaminase, resulting in improved sleep quality and emotional regulation without pronounced sedation. By supporting restorative sleep and reducing stress-related neurobiological burden, lemon balm may contribute indirectly to longevity-related pathways.**

AUTHOR:
Daria Šurić,
MPharm, univ.spec.

Melissa officinalis L. (lemon balm) has long been used in traditional medicine to manage nervous tension, anxiety, and sleep disturbances. In addition to its established role in sleep support, growing scientific evidence suggests that lemon balm may contribute to pathways associated with healthy aging. These effects are primarily attributable to its antioxidant capacity (Figure 1), modulation of inhibitory neurotransmission, regulation of the stress response, and its positive influence on sleep quality.

M. officinalis is a perennial herb in the *Lamiaceae* family, native to the Mediterranean region and Western Asia and widely cultivated throughout Europe and North America. The medicinal parts include the leaves, aerial green parts, and essential oil. Accord-

Figure 1



M. officinalis can reduce oxidative stress by decreasing the production of MDA (malondialdehyde) and increasing the levels of CAT (catalase) and SOD (superoxide dismutase). BDNF, Brain-derived neurotrophic factor; Nrf2: Nuclear factor erythroid 2-related factor 2. Adapted from: Oliveira MVB, Garguerra JA, Lamas CB, et al. Unraveling the Effects of Melissa officinalis L. on Cognition and Sleep Quality: A Narrative Review. Int J Mol Sci. 2025;26(21):10566. Published 2025 Oct 30. doi:10.3390/ijms262110566

ing to the European Pharmacopoeia, the herbal drug *Melissae folium* must contain at least 1.0% rosmarinic acid in the dried material. The phytochemical profile of lemon balm includes phenolic acids, predominantly rosmarinic acid, along with chlorogenic and caffeic acids, flavonoids, triterpenes such as ursolic and oleanolic acids, tannins, and small amounts of essential oil. These constituents underpin the plant's broad biological activity and support its growing use in dietary supplements.

Market presence and formulation context

Lemon balm is widely available in European markets as both a single-ingredient preparation and as part of multi-component formulations for stress relief and sleep support. It is commonly combined with valerian, passionflower, magnesium, zinc, or melatonin, reflecting complementary mechanisms of action. In the context of healthy aging, lemon balm is increasingly viewed as a multifunctional botanical that supports sleep and contributes to long-term neuropsychological resilience.

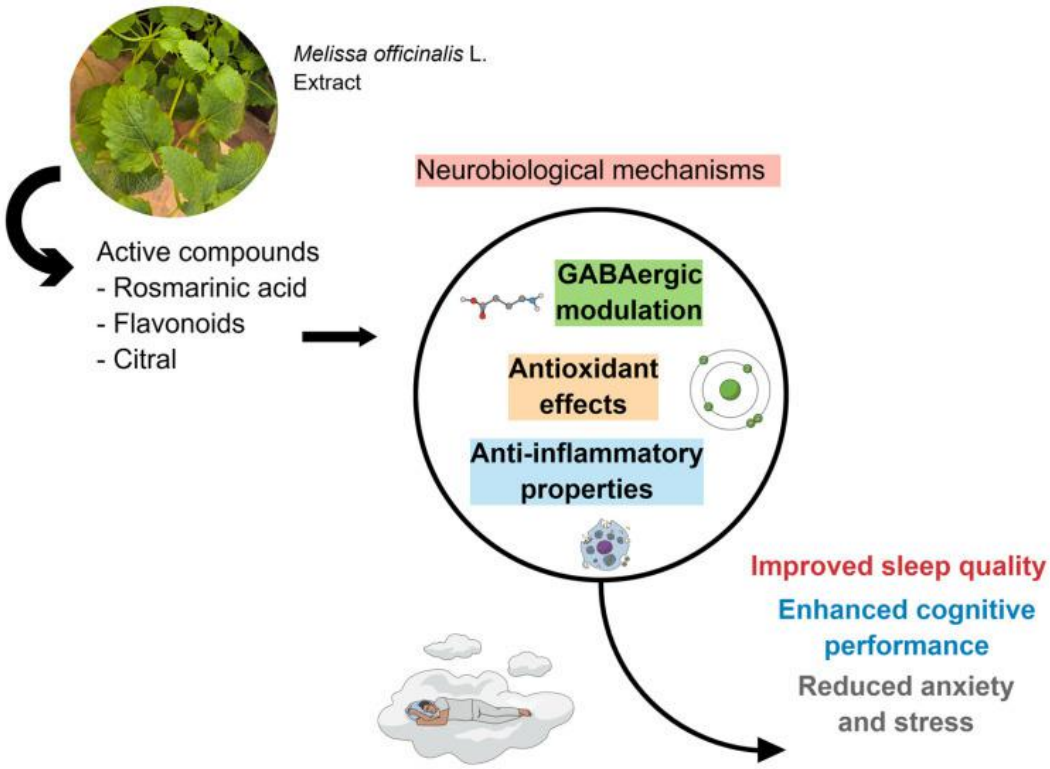
Phytochemical profile and mechanisms of action

The biological activity of *M. officinalis* is largely attributed to its high antioxidant potential. A comprehensive review published in 2017 found that lemon balm exhibits strong antioxidant activity due to its rich content of rosmarinic acid, flavonoids, and other phenolic compounds. Oxidative stress plays a central role in aging, neurodegeneration, and sleep dysregulation, and the antioxidant activity of lemon balm may therefore contribute indirectly to healthy aging by limiting cumulative oxidative damage, particularly within neural tissue.

In addition to its antioxidant effects, lemon balm exhibits significant neuropharmacological activity by modulating the GABAergic system. In vitro studies have shown that lemon balm extracts inhibit GABA transaminase, the enzyme responsible for GABA degradation in the central nervous system. This inhibition increases the availability of GABA, the primary inhibitory neurotransmitter, and provides a mechanistic explanation for the anxiolytic and sleep-promoting effects observed in both preclinical and clinical studies. Rosmarinic acid, along with ursolic and oleanolic acids, has been identified as a key contributor to this activity. Liposomal and phytosomal formulations enhance the bioavailability of key compounds such as rosmarinic acid, supporting more consistent therapeutic effects and potentially amplifying benefits for restorative sleep and longevity-related pathways.

Experimental studies in stressed animals further suggest that the anxiolytic effects of lemon balm may involve interactions with opioid receptors. Chronic stress and dysregulation of stress-response systems are known contributors to accelerated biological aging and impaired sleep. By attenuating stress-indu-

Figure 2



Due to its bioactive compounds, *M. officinalis* can effectively trigger GABAergic modulation, promote antioxidant effects, and exert anti-inflammatory properties. These actions modulate sleep quality, enhance cognitive performance, and reduce anxiety and stress. Adapted from: Oliveira MVB, Garguerra JA, Lamas CB, et al. Unraveling the Effects of Melissa officinalis L. on Cognition and Sleep Quality: A Narrative Review. Int J Mol Sci. 2025;26(21):10566. Published 2025 Oct 30. doi:10.3390/ijms262110566

ced behavioral changes, lemon balm may support emotional regulation and reduce the physiological stress load, both of which are increasingly recognized as important determinants of healthy aging.

Sleep is now widely recognized as a fundamental pillar of longevity. Persistent sleep disturbances are linked to cognitive decline, cardiometabolic disease, neurodegenerative disorders, and increased mortality risk. Clinical studies consistently show that supplementation with *M. officinalis* improves sleep quality, duration, and efficiency, particularly in individuals experiencing stress, anxiety, or chronic conditions. By supporting restorative sleep, lemon balm may indirectly influence multiple biological systems involved in aging, including metabolic regulation, brain health, and immune function.

Clinical evidence

Clinical investigations in patients undergoing coronary artery surgery have shown that short-term supplementation with lemon balm significantly reduces anxiety levels and improves sleep quality compared with placebo. Similar benefits have been observed in patients with coronary heart disease, where longer-term intake improved not only sleep parameters but also symptoms of depression, anxiety, and stress. Given the close relationship between sleep disturbance, cardiovascular disease, and aging, these findings support the relevance of lemon balm in longevity-oriented nutritional strategies.

In postmenopausal women, a population particularly vulnerable to sleep disturbances and accelerated aging processes, clinical trials have demonstrated that combinations of lemon balm and valerian significantly improve sleep quality without inducing the sedative side effects commonly associated with pharmacological hypnotics. These results highlight the suitability of lemon balm for long-term use in midlife and healthy aging formulations.

Standardized extracts such as Cyracos® and Relissa™ further strengthen the clinical evidence base. Studies using these preparations have reported significant improvements in insomnia, anxiety, emotional well-being, and overall quality of life within short intervention periods, with high response rates and excellent tolerability.

Long-term safety data, including studies in patients with mild Alzheimer's disease, indicate that rosmarinic acid–rich lemon balm extracts are well tolerated over extended periods. Although these studies were not designed to assess longevity outcomes directly, they support the neuroprotective safety profile required for chronic supplementation in healthy aging contexts.

Figure 2 shows the results of clinical studies, considering the biological effects attributed to *M. officinalis*.

Safety and tolerability

Lemon balm extracts have demonstrated a favor-

able safety profile across a range of clinical studies, including preparations delivering up to 500 mg of rosmarinic acid daily. Reported adverse effects are generally mild and transient, including nausea, dizziness, or increased appetite. Importantly, lemon balm does not appear to induce tolerance, dependence, or pronounced sedation, making it suitable for long-term use.

Caution is advised in specific populations, including pregnant or breastfeeding women, individuals taking sedative medications or alcohol, and patients with thyroid disorders. Because of its potential to potentiate the effects of anesthetics, discontinuation is recommended at least two weeks before surgery.

Conclusion

Melissa officinalis L. is a scientifically substantiated botanical ingredient with relevance beyond traditional sleep support. Through its antioxidant activity, modulation of inhibitory neurotransmission, stress-response regulation, and consistent clinical benefits on sleep quality, lemon balm aligns with key biological processes underlying healthy aging. Its favorable safety profile and growing body of clinical evidence position it as a valuable component of dietary supplements designed to support sleep, emotional resilience, and long-term brain health, all of which are increasingly recognized as central pillars of longevity.

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Layn Natural Ingredients' Monk Fruit Achieves SAI Gold During Peak Harvest Season

The SAI granted the company Gold and Silver through its Farm Sustainability Assessment (FSA) program

Layn Natural Ingredients, one of the world's largest manufacturers and innovators of natural botanical ingredients and solutions serving brands in food, beverage, flavor, nutraceutical, personal care, animals, and pets, is thrilled to announce that it has received the Gold level status through SAI's Farm Sustainability Assessment (FSA) program.

Devised by the Sustainable Agriculture Initiative (SAI), the FSA program is used for self-assessment and third-party verification. It enables food and drink businesses to assess, improve, and validate on-farm sustainability in their supply chains and is based on Good Agricultural Practices (GAP). The program follows the three pillars of sustainability: people, planet, and profit.

"We are honored to have our monk fruit ingredient receive the Gold level recognition on the Farm Sustainability Assessment from the Sustainable Agriculture Initiative," said Frank Xie, President and CEO of Layn Natural Ingredients. "Sustainability has always been at the heart of Layn Natural Ingredients, and this achievement reflects our ongoing commitment to responsible sourcing, environmental stewardship, and supporting farming communities. As one of the world's largest suppliers of monk fruit, we are proud to lead by example in driving sustainable practices across the industry."

The SAI Platform is the primary global value chain initiative for sustainable agriculture. The nonprofit network collaborates with its members to accelerate the widespread adoption of sustainable agriculture practices and the transformation to sustainable food systems.

In addition to its monk fruit achievement, Layn has earned FSA Silver status for its stevia ingredient supply chain and is actively advancing grower programs, agronomy innovation, and environmental stewardship initiatives, with the goal of achieving FSA Gold for stevia as well.

Strengthening climate-resilient monk fruit through innovation & industry partnership

To address climate variability and secure long-term monk fruit supply, Layn and DSM-Firmenich have jointly launched a comprehensive Sustainable Project at source. Through this collaboration, both parties evaluated soil and water resources across key growing regions, monitored farming practices using the Path2Farm tool, and established pilot farms to test climate-resilient methods such as soil preservation and drought-management strategies. The best practices proven through these pilots are now being scaled across Layn's monk fruit grower network, supporting more than 80,000 farmers, and were instrumental in enabling Layn to achieve the FSA Gold certification.

Complementing this partnership, Layn's Botanical Research & Innovation Center, established in 2017, continues to advance monk fruit agronomy with high-performing, high-yield monk fruit varieties and improved cultivation models designed to enhance stability and productivity. Led by a team of top agricultural experts and plant scientists, the center applies advanced breeding, field-management innovation, integrated waste-management, and upcycling practices to strengthen environmental performance throughout the monk fruit supply chain. Additionally, Layn's long-standing price-protection policy ensures contracted farmers receive stable and reliable income each season, reinforcing both social and economic sustainability at the source.

Supporting the global sweetener supply chain

The monk fruit harvest season is in full swing, and fall is the ideal time for brands to secure supply and guaranteed pricing through Layn's multi-year monk fruit contracts, which provide long-term assurance to meet the growing demand for natural sweeteners.

"As the world's largest producer and innovator of monk fruit and stevia, Layn's vertically integrated sourcing - from tissue culturing and seedling to farmer partnerships and quality control - we ensure our partners consistent quality, stable output, and sustainable agriculture," Xie stated.

Layn's monk fruit portfolio includes monk fruit extract, monk fruit juice powder, and monk fruit juice concentrate, offering versatile solutions for a wide range of applications. Complementing its supply leadership, Layn also advances natural sweetener innovations, including SteviUp® M2, fermented Mogroside V, U.S.-made stevia, and U.S.-made sweetener blends for clean-label, reduced-sugar applications.

botanify@layn-usa.com
www.layncorp.com

Building the Next Generation of Wellness Growth – 2026 predictions and trends

Consumers are moving away from 'quick fixes' and shifting towards more holistic, long-term, preventative health strategies. Aaron Quinn, Deputy General Manager at Vantage Nutrition, believes that in 2026 we will see continued and sustained growth in everyday supplementation, and offers his predictions for the year ahead.

Aaron Quinn, Deputy General Manager at Vantage Nutrition

Sleep continues to dominate as a wellness category

Consumers increasingly understand that sleep is essential to their health and well-being and are looking to supplements to help them unwind and recover. The markets agree. According to a recent report from Future Market Insights, the sleep supplement market is growing steadily and will continue to do so into next year and beyond. Estimated to be valued at USD 7.5 billion in 2025, it is projected to reach USD 12.8 billion by 2035, registering a compound annual growth rate (CAGR) of 5.4% over the forecast period[1].

Anecdotal evidence from our customers also suggests that when it comes to sleep supplements, consumers are more confident and comfortable with trusted, evidence-backed formulations like lavender, saffron and vitamin B6. I believe that this trend for research-led supplements that promote clarity, calm, deep rest and cognitive recovery will lead the market in 2026 and beyond.

The GLP-1 effect

The rapid rise in prescriptions for GLP-1 medications to help treat obesity and reduce weight-related health risks is transforming the dietary patterns, appetite regulation and body composition for peo-

ple around the world.

However, the significant weight loss associated with these drugs is not without its side effects, which can range from muscle loss to fatigue. As such, I believe we will see further development – and demand – for GLP-1 companion nutrition, such as supplements that support muscle retention, fibre intake, gut health, micronutrient balance and sustained metabolic energy.

Younger consumers champion „positive ageing"

The days of 'anti-ageing' creams, serums and supplements are numbered. While the desire for longevity shows no signs of slowing, the language and focus are changing from one of denial to that of awareness. It is no longer just about living longer, but about putting healthcare regimes in place to help us achieve a better quality of life as we age.

We will see this trend toward 'positive ageing' continue to grow in 2026, with millennials - and increasingly younger consumers - investing in maintaining or improving their mobility, cognition, immunity and recovery.

I predict product development will follow suit. We will continue to see steady growth next year in supplement areas including joint health, bone density, cognitive performance and sustained vitality. This expansion is being driven by increased consumer awareness of factors that impact long-term health and functional wellbeing.

Women's health market still set to thrive

A key example of the growing prevalence of targeted nutrition, female-focused wellness will continue to accelerate in 2026. Even though this sector is heavily promoted, it is far from saturated.

Increased awareness campaigns from Hollywood stars through to local GPs are helping to remove the taboo of talking about women's health and supporting this growth trend across a range of categories including hormonal balance, fertility, menopause, cognitive wellbeing and sexual wellness.

Building on the positive ageing trend mentioned above, I believe we will also see rising demand for ingestible supplements designed to improve beauty from within. This includes products that help to brighten and balance skin tone and increase elasticity.

Personalised nutrition enters the mainstream

Reflecting the broader shift in health from reactive 'quick fixes' toward proactive self-management, personalised nutrition is moving into the mainstream.

In 2026, I expect this trend to manifest in increasingly targeted formulations - from gender- and age-specific supplements through to personalised 'biohacking kits.' These customisable systems will allow consumers to tailor their own support for sleep, stress, mood, metabolic health and performance.

[1] https://www.futuremarketinsights.com/reports/sleep-supplement-market

B2B Events Calendar 2026

This is an overwiev of the B2B live events during 2026

22-24 February, Bologna
https://www.sana.it/en/home/1229.html

26-29 March, Bologna
https://www.cosmoprof.com/

04-16 April, Paris
https://www.in-cosmetics.com/global/en-gb.html

14-16 April, Warsaw
https://nutrafood.pl/en/

20-22 April, Singapore
https://beautyasia.com.sg/

21-22 April 2026, Coventry
https://www.makingnutra.com/

21-23 April, NYC
https://www.interphex.com/en-us.html#/

05-07 May, Barcelona
https://www.vitafoods.eu.com/en/home.html
MEDIA PARTNER

09-10 May, Belgrade
https://www.sajamkozmetike.com/

19-20 May, Amsterdam
https://plmainternational.com/

03v-04 June, London
https://foodmatterslive.com/london

Microbiome Innovation in Oral Care

Oral health plays a key role in overall well-being, with growing evidence linking it to systemic inflammation, metabolism, and immune function. Advances in microbiome science are shifting oral care from antimicrobial control to targeted microbiome modulation.

A recent narrative review published in Microorganisms (MDPI, 2025) evaluates the role of Darolac® (Oralis SB®), a multi-strain probiotic formulation, and highlights its potential as a science-backed, microbiome-friendly adjunct in oral health management.

From antisepsis to microbiome balance

The oral cavity is one of the most diverse microbial ecosystems in the human body. Oral health is not defined by the absence of microorganisms but by the stability and resilience of the microbial community. Dysbiosis - rather than infection alone - is increasingly recognized as a key driver of gingival inflammation, periodontal disease, and mucosal imbalance.

Conventional antiseptic mouthwashes remain effective for short-term bacterial control; however, long-term use may disrupt commensal microbial populations; affect taste and oral comfort; compromise microbiome resilience.

This has heightened interest in probiotic and postbiotic strategies that support physiological microbial balance rather than indiscriminate microbial eradication.

Darolac® (Oralis SB®): a rationally designed probiotic formulation

Darolac® is a well-characterised probiotic formulation combining bacterial and yeast strains with established safety profiles and documented functional properties: *Lactobacillus acidophilus* Rosell®-52, *Lactobacillus rhamnosus* Rosell®-11, *Bifidobacterium longum* Rosell®-175, *Saccharomyces boulardii* CNCM I-1079.

The formulation has been developed to support:

- Competitive exclusion of oral pathogens
- Maintenance of mucosal barrier integrity
- Modulation of local immune responses
- Overall oral microbiome homeostasis

Evidence overview: key insights from the MDPI review

The narrative review synthesises clinical and mechanistic data assessing Darolac® in oral health applications. Key findings include:

Support for periodontal health

Clinical observations demonstrate improvements in gingival and periodontal parameters when Darolac® is used alongside standard oral hygiene practices.

Microbiome-centric mechanism of action

Rather than acting as a broad antimicrobial, Darolac® promotes a favourable shift in oral microbial composition, supporting commensal species and limiting dysbiotic overgrowth.

Comparable outcomes to antiseptic mouthwashes

Across several clinical endpoints, probiotic intervention achieved outcomes comparable to those of chlorhexidine-based solutions, without the commonly reported adverse effects associated with chlorhexidine.

Suitability for long-term use

The probiotic approach demonstrated a favourable tolerability profile, supporting its role in sustained oral care regimens.

Conclusion

The MDPI review underscores a fundamental shift in oral care science: health is supported by microbial balance, not by microbial elimination. Darolac® (Oralis SB®) exemplifies a next-generation probiotic approach that integrates microbiome science with clinical relevance, offering a well-tolerated, evidence-based adjunct for oral health maintenance.

As microbiome research continues to inform product development across nutraceutical and cosmetic categories, probiotic oral care represents a strategically important and scientifically credible area of innovation.

Source:

Blais, L., Auclair-Ouellet, N., Tremblay, A., & Binda, S. (2025). Effect of the Darolac® (Oralis SB®) Probiotic Formulation on Oral Health: A Narrative Review. Microorganisms, 13(2), 408. https://doi.org/10.3390/microorganisms13020408

Science Meets Wellbeing – Chondractiv™ Move By Symrise

Chondractiv™ Move by Symrise shows clinical results for joint health in active women aged 40+. A Four-in-one solution from hydrolyzed chicken cartilage and rosehip. Backed by market insights, clinical evidence and significant results. Targeted for perimenopausal and menopausal women with an active lifestyle

Symrise announces significant clinical study results within its portfolio of Health Active Solutions: Chondractiv™ Move, a four-in-one collagen-based solution for joint health and mobility, has been clinically demonstrated to support menopausal women in their active lifestyle. It offers a natural, science-backed, and unique composition for brands seeking to formulate nutraceutical products supporting women's health and healthy aging.

To address the rising market of menopausal women, and to strengthen its collagen range, Symrise has launched Chondractiv™ Move. It has now also conducted a proprietary clinical study that showed significant results. This four-in-one natural, and proven solution supports physical exercise and active lifestyles. Symrise introduced the solution earlier this year at the Vitafoods Europe tradeshow in Barcelona, Spain, and at SupplySide Global taking place in Las Vegas, United States.

The innovative combination of hydrolyzed chicken cartilage and patented rosehip extract features collagen type II, chondroitin sulfate, hyaluronic acid, and polyphenols. It supports women aged 40+ looking for regular healthy joint maintenance and early prevention of joint discomfort. The solution is designed for food supplements and functional foods and beverages. Support by scientific data Chondractiv™ Move demonstrated positive effects on the population the most impacted by activity-related joint discomfort/pain: women over 40. This group includes active women, working mothers, fitness beginners, those in sport recovery, and women in peri-menopausal transition.

At the cellular level, Chondractiv™ Move acted on synovial cells by increasing components of cartilage and decreasing the levels of cartilage-degrading enzymes. Eight weeks of supplementation with a low daily dose of 1.58g of Chondractiv™ Move induced a significant decrease in pain related to physical activity in daily life. The earliest positive results were measured between the second and the third week of supplementation.

According to Lionel Noah, PhD Healthy Aging Sr Scientific Expert at Symrise, "the four-in-one solution provides a sustainable effect on joint structure by modulating cartilage and bone microenvironment, with evidence supported by in vitro results. We could objectively describe the magnitude of this effect as 'large.' Several other parameters help to confirm the observed benefit of Chondractiv™ Move for joint comfort and function" he concludes.

www.symrise.com

Challenges and Difficulties of Small-Scale Cosmetic Producers in Practice – Part 2

In the previous issue, I wrote about real-life examples addressing misunderstandings about the "product line" concept, the distinction between a laboratory and a production facility, and the improper use of foreign-language product labels that exclude the national or official language. This issue continues with practical examples I regularly encounter in my work with clients, particularly small-scale producers who are either inexperienced or come from outside the cosmetics industry.

AUTHOR:
Gordana Gorinšek, MSc in Phytomedicine, Expert Cosmetic Safety Assessor, Expert Regulatory Affairs Consultant

Story 4: Formula *vs.* formulation

What's the real difference?
Due to unfamiliarity with the terminology, the terms formula and formulation are often used interchangeably in practice, although they represent two different - yet closely connected - levels in the development of a cosmetic product. In addition, there is a third layer that many overlook: formulation as product form.

Formula (the recipe)
A formula is a list of raw materials with clearly defined percentage amounts. It is the recipe - colloquially speaking, "a recipe like for a cake." It defines what

goes into the product and in which concentration. A formula may exist on paper without the product ever having been made.

It answers the question: **What is in the product, and in what amount?**

Formulation (the process)

Formulation refers to the technological process of creating the product - the phases, the sequence of adding ingredients, the critical control points, the mixing speeds, and homogenisation parameters, and all operational steps that allow the formula to become a stable and functional product.

This includes the know-how, the technological procedure, and the method used to obtain consistent and reproducible batches.

Without formulation, a formula may be unusable - the same formula prepared through different procedures can lead to completely different outcomes, such as emulsion separation, clumping, unstable viscosity or microbiological issues. This is particularly common when a prototype is produced manually in small quantities, while the full batch is manufactured mechanically in larger volumes. In such cases, fine-tuning the formula and adjusting ingredient ratios that influence stability becomes essential.

It answers the question: **How is the product made?**

Formulation as "product form" (the physical form)

This is the most frequently overlooked aspect. In industry terminology, formulation also refers to the physical form of the finished product - whether the product is an emulsion, gel, paste, powder, liquid or any other physical format.

This dimension of formulation is important because it influences product stability, determines compatibility with packaging, and defines sensorial properties.

It answers the question: **What is the physical form of the product?**

In conclusion: Formula and formulation have never been synonyms, nor will they ever be. A formula without formulation is nothing more than words on paper. A poor formula and an incorrect selection of raw materials will never result in a high-quality formulation - just as you cannot produce good wine from poor-quality grapes. A poor formulation can completely ruin even an excellent formula and significantly shorten the product's shelf life.

They are interconnected, yet at the same time entirely independent of each other - much like viticulture and winemaking, to continue the agricultural analogy.

Story 5: The true meaning of product composition what does a safety assessor actually ask for?

When a safety assessor requests the qualitative and quantitative composition of a cosmetic product, many small-scale producers are unsure what this truly means, or why it is so important.

Qualitative composition

The qualitative composition answers the questions: **Which raw materials am I using?**

It refers to the complete list of all raw materials present in the formula or finished product. Beyond the correct trade name, it is strongly recommended to list the manufacturer or supplier as well. Raw materials with identical INCI compositions may appear under different trade names depending on who repackages or distributes them along the supply chain.

In other words, qualitative composition means: **what is inside the product.**

Quantitative composition

The quantitative composition answers the question: In what concentration is each raw material present in the formula or finished product?

It represents the exact concentrations of each ingredient, with the important note that concentration refers to mass fraction, not arbitrary volume measures or informal approximations (without going into the use of concentration ranges for data protection purposes here).

In other words, quantitative composition means: **how much of each substance is inside the product.**

Many small producers say they "have a recipe", when in reality they only have a list of ingredients copied from a supplier's technical sheet (if they even have that), a pseudo-INCI list resembling a product label, or local names, abbreviations or personal shortcuts they use to remember their ingredients - while the concentrations are not stated at all, only "rough amounts" estimated intuitively.

This is **not** a qualitative and quantitative composition. This is a wish list. A shopping list.

For a proper safety assessment - which relies entirely on the qualitative and quantitative composition - it is essential to have a document that provides both sets of data clearly, accurately and in full. These data are the starting point of every safety evaluation.

In conclusion: Without a qualitative and quantitative composition, a cosmetic product does not truly

exist - only an idea written on paper. And the cosmetics industry, like any other, does not accept ideas but measurable data. It may welcome ideas as innovations, but the realisation of any idea begins with numbers.

Story 6: If it isn't documented, it doesn't exist

Professionalism starts on paper

One of the recurring issues I encounter when working with small-scale cosmetic producers is the lack of any clear understanding of what internal documentation should look like - from the simplest items, such as a basic company letterhead, to more complex documents like a properly formatted formula or a written or graphical manufacturing method.

Most do not understand why such information must be submitted on an official document, or why the presentation of these documents matters at all. As a result, formulas are often sent handwritten on a torn page from a notebook, or photographed at night under poor lighting and sent via WhatsApp. If the information arrives in a Word file without a header or footer, we may consider ourselves lucky.

Yet it is essential to understand that documentation containing such intimate and confidential details must exist in an official form that clearly identifies its owner or originator. Without this, what we have is simply a loose piece of paper - indistinguishable from something a child might have scribbled on.

This, too, is a part of the work that requires respect - respect for the profession, for the process, and for the product we expect to bring us success. Professionalism begins with the smallest steps.

To take home

Across all these stories runs the same thread: success in cosmetics is built on clarity, structure and respect - respect for the rules, for the craft, for documentation, and for the product we create. Small producers often underestimate the importance of these "basic" elements, yet they are the very foundations of safe, compliant and professional work. When these foundations are in place, everything else - innovation, growth, recognition - becomes possible.

To be continued...

AROMATIČNI KUTAK

Aromatični kutak Ltd.
Brune Bušića 21
Zagreb, Croatia
https://pif.com.hr/
info@aromaticnikutak.hr
T. + 385 98 1750 934

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