



Insights on Phytotherapeutics Market

TechSci Research Analysts in
Conversation with:

Dr. Vivek Srivastav

Senior Vice President
Innovation -Business Strategy and Scientific Affairs
Zeon Lifesciences Ltd.



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Senior Vice President
Innovation -Business Strategy and
Scientific Affairs Zeon Lifesciences
Ltd.

Could you please share some insights about your professional background and experience in the Phytotherapeutics market?

With more than 17 years of expertise in the Nutraceutical, Herbals & Phytotherapeutic sector, I spearhead Innovation, R&D, Business strategy, and Scientific affairs at Zeon Lifesciences Ltd, a leading Contract manufacturer and Exporter of Nutritional products. In my role as Senior Vice President, I oversee the complete Product commercialisation lifecycle, from Ideation to market launch, utilizing my knowledge in Product development, Regulatory compliance, and Business management.

Throughout my professional journey, I have been involved in the creation of numerous highly anticipated Products and Ingredients. While I have played a key role in their Innovation, Formulation and development, the patents have generally remained with the companies or their founders.

Although only a limited number of patents are registered under my name, I take pride in my contributions to many innovative Formulations and advancements. I have successfully introduced over 120+ formulations across diverse categories, including General nutrition, Clinical nutrition, Nutraceuticals, Sports nutrition, Cosmeceuticals, Herbals, Phytotherapeutics, and Ayurvedic products.

Furthermore, I have enhanced Zeon Lifesciences' Global footprint in International arena, creating new revenue Opportunities and Partnerships. As a dedicated writer, speaker, mentor, and award winner, I am passionate about fostering thought Leadership and Knowledge exchange within the Industry.

As previously mentioned, you have conducted research and developed more than 120 formulations. So, do you own a patent of your own?

In my experience within the industry, I have had the opportunity to work on a variety of highly Innovative Product formulations, Process and Ingredients. However, it is important to note that the ownership of these innovations often resides with the company founders. While I have contributed significantly to the development and invention of these products, only a couple of patents bear my name, as the majority are attributed to the organizations and their owners/founder/board.

As you have mentioned about that, you have B2B segments and B2C segments as well when it comes to the wellness sector. So, can you help us understand or can you comment on the difference between B2B and B2C scenarios of the overall wellness sector in India?

In the context of B2B, the term signifies the process of conducting and transferring



Business, which subsequently leads to further Business activities. For instance, as an Ingredient supplier, a company may Produce raw materials, while another company takes on the responsibility of delivering the Finished product, Market, and Selling it within a specific region or varied demography. In the wellness industry, the focus on quality is paramount for Manufacturers. This is particularly crucial when dealing with Botanical ingredient(s) or Bioactives, where it is essential to accurately identify the key Chemical constituents.

Given that these ingredients are derived from Natural sources, there is an inherent risk to their authenticity due to potential substitutions. For example, in Ayurveda, certain plant classes like Dashamoola and Astavarga have seen many of their species replaced by alternatives. This poses a significant challenge, as some plant species are becoming endangered. Therefore, it is vital for manufacturers, whether in the Wellness sector or any other Industry, to ensure Quality control from the sourcing of Raw materials through to the Formulation and Batch release of the Final product.

This process, which we refer to as Product validation, must be upheld at every stage before the product reaches the Market or end Consumer Shifting to B2C, the wellness segment encompasses a wide array of products, particularly in the realm of Dermacosmetics or Personal Care, which cater to varied product for Skin, Hair, Body and other Beauty and Care need. The market is now filled with numerous companies and Product categories. Previously, Herbal or Botanical products were primarily associated with Therapeutic uses under Proprietary Category; However, the rise of Supplements, particularly Botanical supplements and Usage of Botanical Extract(s) in Nutraceutical Products has emerged as a significant trend. This shift reflects a growing consumer interest in managing health conditions through these Innovative products.

So, is it because of COVID or any other factor, like support from the government like inclusion in AYUSH and FSSAI, that the demand and certainly the market has increased, or the focus has come towards this sector because, if we talk about 5-10 years ago, it was all into allopathy, so suddenly why phytotherapeutics have started thriving?

Numerous emerging factors have contributed to a significant shift in consumer thinking, with COVID-19 being a pivotal influence. While the market response

followed, the transformation in consumer mindset is crucial, as it dictates how individuals engage with products. This shift in thought processes directly impacts Product demand, Development and Market launches. Indeed, COVID-19 stands out as a critical event that has advanced market dynamics and broadened acceptance of various approaches.

In the context of conventional or allopathic medicine, it appears that people are increasingly inclined to seek these options primarily for urgent medical needs or specific treatments. For instance, I would not recommend Ayurveda for immediate conditions like hyperpyrexia or high fever, as such situations require prompt intervention. While Ayurvedic practices may offer long-term benefits, they necessitate a gradual physiological adjustment. In contrast, conventional treatments like paracetamol provide immediate relief.

As we consider Chronic health issues, it is essential to focus on prevention, where Nutraceutical supplements emerge as vital solutions. Although conventional treatments will continue to play a role, I foresee a growing challenge for this sector as Traditional medicine gains traction. The acceptance of Natural and less toxic alternatives is on the rise, with fewer adverse effects associated with Ayurvedic, Phytotherapeutic and Supplement options. While side effects can occur, they are often minimal and may even yield positive outcomes, as these therapies tend to support overall well-being by addressing multiple symptoms holistically.

Previously, you have mentioned the right constituents for the research. Can you tell me about the most used plant-based compounds and therapeutic treatments these days and what their key benefits are?

Commonly used plants include Cardamom, known for its volatile and essential oils, and Piper nigrum, or black pepper, which contains up to 95% Piperine as identified through HPLC analysis. Additionally, Cinnamon and Tulsi plants have active constituents that can reach up to 2.5%.

In the realm of Herbal therapy, Ashwagandha is notable for its 2.5–5% withanolides, while Brahmi, or Bacopa, boasts active compounds ranging from 20% to 40%, with some manufacturers claiming up to 60%. Ashwagandha is recognized for its Adaptogenic properties, whereas Bacopa is known to enhance cognitive function and mental energy. Amla, a widely used herb, contains beneficial Poly-



phenol, Tannins, Flavanoids and Ascorbic acid, and Tagar (Valerian) is primarily utilized as a Sleep aid due to its Valeric acid content. *Gymnema sylvest*re, which contains 25–50% gymnemic acid, is increasingly studied for its role in managing diabetes and insulin resistance, particularly in relation to PCOS. *Salacia reticulata*, also known as Saptrangi, is another herb used for diabetes management. Methi, containing saponins, is beneficial for Metabolic health and the management of metabolic disorders. These ingredients serve various therapeutic purposes, with a historical emphasis on Ayurvedic approaches to cancer management. The integration of these botanicals into treatment regimens is crucial for enhancing the Quality of Life, especially for patients enduring Chronic illnesses or undergoing aggressive treatments like Chemotherapy or radiation. While these patients may achieve remission, their Quality of Life often suffers significantly. Therefore, appropriate Supplementation with Botanical, Vitamins, Minerals, Micronutrients, Amino acid etc. is essential. This area is not only gaining traction in therapeutic applications but is also emerging as a significant market segment, supported by scientific research.

So, like you mentioned about many natural or bioactive compounds, which are making breakthroughs in terms of research only, we have also read about these compounds. So, any new compound that has been recently developed or recently made a breakthrough in terms of research. If you can tell us about it.

The presence of compounds in Medicinal Plants can resemble microsites, with new isomers emerging. In the realm of natural product chemistry, there has been little advancement in India regarding this aspect. However, it is noteworthy that new isomers or variants of existing compounds are present, likely due to the diverse array of natural product compounds found in botanical plants. Currently, research tends to focus on a limited number of Bioactive(s), while many others remain underexplored.

Significant research efforts are underway to identify additional active compounds or isomers with Therapeutic properties, Including Alkaloids, Terpenes, Glucosinolates, Phenolic compounds, Flavonoids, Lignans etc. Although these compounds are not entirely new, ongoing studies aim to uncover natural nutrients within botanical categories or plants that are entirely natural.





If we talk about taking certain medications from botanicals, it must be very difficult to maintain the consistency for every batch of medicine that is being produced or the similar ingredient composition. So how do you address those issues?

The therapeutic quotient or Presence of Natural active constituents in Medicinal Plants presents an intriguing paradox, as their effectiveness is influenced by various factors such as Seasonal changes, Geographic distribution, and Soil conditions. These elements play a crucial role in determining the appropriate plant or crop for cultivation.

The timing of cultivation is particularly significant, as it can lead to variability in the primary chemical constituents of the plants. A practical approach to address this inconsistency is to focus on isolating natural compounds and standardizing them to a minimum percentage of the key chemical constituent.

This standardization is essential, given that the composition of ingredients can differ across regions. By establishing a consistent minimum percentage with activity rate, one can ensure stability throughout different seasons and cultivation periods.

Furthermore, implementing an analytical validation process is vital. This involves verifying the quality of Raw materials or Principal Chemical Constituents or Bioactive, either through in-house testing or collaboration with Third-party laboratories.

It is imperative for government support in this area, as many companies may hesitate to pursue these validations due to the high costs associated with establishing markers and standards. A recommendation for government intervention could lead to improvements in this field.

Additionally, manufacturers of Herbal extracts should prioritize the identification of plants based on these established standards, with herbarium resources playing a critical role.

In contemporary practices, alternative substitutes for certain compounds are available, making it easier to replace plants based on their active properties. However, in the context of Ayurveda, each plant possesses unique qualities, as described in traditional texts.

For instance, the properties of Amla are well-documented, highlighting the importance of understanding the specific characteristics of each plant.



How do you navigate through the regulatory challenges in India, as India is exporting and importing the botanicals?

Botanical elements are being integrated into both standard and proprietary products within AYUSH, while also aligning with FSSAI regulations. In AYUSH, every product must reference foundational texts such as Dravyaguna Vigyan, Charak Samhita, or Ayurveda Sar Sanghra, which are essential Ayurvedic literature. Consequently, any product lacking these references is typically not accepted. However, I believe that products supported by recent studies or innovative research should also be considered.

This approach could stimulate innovation, allowing the industry to recognize that AYUSH products are gaining prominence based on cutting-edge research. Such a shift would pave the way for advanced innovation and the isolation of compounds for various therapeutic applications. Additionally, FSSAI has recently recognized numerous plants as acceptable food supplements, which significantly benefits the exploration of various botanicals.

Where do you see the business opportunities for future research in Phytotherapeutics?

Autoimmune diseases such as psoriasis and rheumatoid arthritis often involve high conventional treatment costs and significant adverse effects. Therefore, adjunctive therapy should be considered as a secondary treatment option, presenting a promising opportunity for botanical or phytotherapeutic solutions. Nano-digestion enhances the bioavailability and pharmacokinetics of active ingredients that are typically poorly absorbed, making them more effective. The scientific conceptualization of increasing Bioavailability of Phyto-actives with Nanotechnology, ensuring rapid action and efficient delivery into the bloodstream is an opportunity for Research & Commercial both. Additionally, this approach is also being investigated in relation to various Metabolic disorders.

Can you provide some examples or cases where phytotherapy is particularly effective in managing or treating specific conditions?

Phytotherapeutics play a significant role in the treatment of Psoriasis. They are also effective for conditions like Cervical spondylitis, Rheumatoid arthritis,

and various Inflammatory conditions, especially when other conventional (oral or topical) treatments have failed. Promising results have been observed with Bioactive or Botanical Extractive(s). Additionally, in cases of Hepatic disorders, solutions primarily stem from Ayurveda or Natural or Alternative medicine.

What advice do you want to give to the healthcare providers who are looking to integrate phytotherapeutics into their practices?

They need to be receptive and should engage in comprehensive reading on the subject. There is an abundance of study resources available both online and offline. Numerous institutions are offering short-term courses. A practical approach emphasizes the importance of interaction.

For instance, if someone is on blood thinner like aspirin, recommending high doses of garlic or ginger is inadvisable, as it can lead to synergistic inhibition and further thin the blood. Therefore, it is crucial to thoroughly investigate drug-nutrient and drug-bioactive interactions.

Emphasizing integration is beneficial; if we adopt a holistic approach and develop policies that effectively combine various therapeutic concepts, we could significantly alleviate the country's disease burden, leading to improved health and happiness for the population. Thus, focusing on these interactions is essential.

Do you foresee any major innovation or technological advancement that could revolutionize the field of phytotherapeutics?

Nanotechnology and nanotization of Principal natural active compounds play a crucial role in enhancing the concentration of compounds to the point where they can be encapsulated in minuscule molecules, improving absorption. This innovation is not merely about modern or advanced technology; it emphasizes the importance of respecting traditional knowledge alongside scientific progress.

When discussing natural products, it is essential to ensure that the integrity of traditional wisdom remains intact.

Is there anything else you want to add that we haven't covered during this interview?

Safety and efficacy validation represents a significant gap in current practices, often leading to overuse and misapplication. It is crucial to identify the factors that can undermine progress.



Additionally, the issue of Biopiracy persists, characterized by the unauthorized exploitation of traditional knowledge and resources by business entities without equitable compensation. From a regulatory perspective, addressing these challenges is of paramount importance.

What message would you like to share with the global medical community regarding the potential and significance of phytotherapeutics?

They should not only endorse Natural medicines or Supplementation to the patients and consumers but also engage in more discussions about it to enhance satisfaction among them. This area is not well understood, and greater dialogue would lead to increased exploration and acceptance of phototherapeutic medicine through word-of-mouth. Therefore, in the Herbal or Nutraceutical sector, effective communication—whether through writing or other means—must be prioritized and conveyed appropriately. It is not only logical to engage in business, but it is also essential to optimize that business by integrating science, sustainability, systems, and a Sentiments for natural resources. The government needs to focus on developing policies that ensure long-term sustainability. “If we exhaust all the easy opportunities, industries will struggle to survive, resembling a giraffe that has extended its neck to reach leaves of taller trees—something not every creature can do. A business lacking sustainability is akin to a deep abyss”- The Industry and Government must focus on synchronizing the ecosystem to benefit both established companies and startups.





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AUTHORS



Karan Chechi

Research Director



Shaurya Singh

Senior Research Analyst



Shraddha Sharma

Junior Research Analyst