

Title: Changing the cultivation landscape of plant-active medicines

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The industry of plant-origin medicines is witnessing a growing demand, boosted by the ongoing Covid-19 pandemic, as preventative healthcare and medicinal nutrition has been highly emphasized. The global market for plant-origin medicines is expected to grow at a CAGR of 9% from 2021-2028, while having already grown at 9.0%+ in the last few years¹. Asia Pacific has over 31% market share and is expected to continue to lead it². India provides an opportunistic base to meet the growing demand due to its rich natural biodiversity with over 50,000 plant species and access to low-cost production.

The plant-based medicine industry faces obstacles that have been present for decades now. Procurement and authentication of plant materials is a key challenge caused by the concentration variability in biologically active compounds. Scalability of such medicines is another hinderance which arises from the lack of availability of plants and the inability to ensure homogeneity in large bulk quantities³. Manufacturing related external complications such as adulteration, contamination, and storage protocols have been identified as a barrier for global trade⁴. Additionally, legal and political issues emerge when dealing with benefit-sharing agreements between farmers, scientists, and bioprospecting companies, which calls for innovative strategies to address these concerns⁵. These collective challenges call for quality control and standardization protocols to ensure maximum benefit and safety to patients and consumers.

NBI Biosciences is an innovative biotechnology company that has tackled these challenges from day 1. Amit Jain, our lead technical agricultural scientist We start from soil health examination where the soil profile is adjusted based on the demand of the crop, using integrated nutrient management. Then our technical experts monitor and harvest crops at the critical stages and check for the concentration of bioactive molecules at each step. NBI Biosciences complies with Good Agricultural Practices [GAP], Good

¹ Grand view research. (2021, October). Nutraceuticals market size & share report, 2020–2028.

² Ibid.

³ Jachak, M.J. and Saklani, A. (2007) Challenges and opportunities in drug discovery from plants. Current Science.

⁴ Zhang J, Wider B, Shang H, Li X, Ernst E. (2012). Quality of herbal medicines: challenges and solutions. Complimentary therapies in medicine. Science direct.

⁵ Rosenthal, J. (2002). Curtain has fallen on hopes of legal bioprospecting. Nature.

Agricultural and Collection Practices, and Good Manufacturing Practices set forth by the WHO. This allows us to prevent external contaminations and achieve the maximum output from our crops. Ensuring homogeneity and scalability of the product is the closing step NBI Biosciences performs to complete the supply chain process. We have achieved the ability to produce and deliver ingredients to manufacture over 200Mn doses of medicine, allowing us to truly expand our reach to the global community of patients.

The Government of India is committed to improving the farmers' social, economic and education levels and NBI Biosciences supports that goal. Through contract farming, we adopt a profit-sharing model with the farmers whereby the farmers diversify their crop and receive alternative income sources along with education from our technical experts during the soil examination and crop harvesting processes. We also offer assured buy-back guarantees to the farmers to help them protect their income. NBI Biosciences is creatively changing the landscape of cultivation of plant-based medicines and continues to pursue new protocols and technologies that improve the safety and benefits to the global community of patients and consumers.