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THE POWDER OF PLANTS: EXPLORING HERBAL NUTRACUETICLES

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ABSTRACT

Nutraceuticals are bioactive compounds derived from food sources that provide health benefits beyond basic nutrition. This seminar report presents an extensive overview of nutraceuticals, including their definition, classification, advantages, bioactive components, probiotics, safety considerations, regulatory frameworks, and future prospects. The increasing prevalence of lifestyle-related disorders has created demand for preventive healthcare strategies, where nutraceuticals play a vital role. Functional foods, dietary supplements, antioxidants, and probiotic-based products contribute to maintaining physiological balance and improving quality of life. Advances in nanotechnology, nutrigenomics, and microbiome research are shaping the future of nutraceutical development. This report highlights the importance of scientific validation, quality control, and standardized regulatory practices to ensure safety and efficacy in modern healthcare.

***KEYWORDS**: - Nutraceuticals, nanotechnology, Dietary Fibers, Bioactive Components.*

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1.INTRODUCTION

Nutraceuticals bridge the gap between food and medicine by combining nutritional benefits with therapeutic properties. They include vitamins, minerals, antioxidants, dietary fibers, probiotics, and phytochemicals that influence biological pathways such as oxidative stress reduction, immune modulation, and metabolic regulation. Modern research highlights their potential in preventing cardiovascular diseases, diabetes, obesity, cancer, and neurodegenerative disorders. Advances in biotechnology and pharmaceutical sciences have enabled improved delivery systems such as Nano-encapsulation and liposomal formulations, enhancing bioavailability and effectiveness. Regulatory agencies emphasize quality control, Good Manufacturing Practices, and evidence-based health claims to ensure consumer safety. The integration of nutraceuticals into preventive healthcare reflects a global shift toward holistic wellness and personalized nutrition strategies [1].

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2. CONCEPT AND DEFINITION OF NUTRACEUTICALS

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3.CLASSIFICATION AND CATEGORIZATION OF NUTRACEUTICALS

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4. ADVANTAGES OF NUTRACEUTICALS

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6. BIOACTIVE COMPONENTS AND NUTRACEUTICALS

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7. PROBIOTICS, PREBIOTICS AND NUTRACEUTICAL APPLICATIONS

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8. FUTURE PROSPECTS AND CONCLUSION

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9.AUTHOR CONTRIBUTIONS

All authors are contributed equally.

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None

11.DECLARATION COMPETING INTEREST

The authors have no conflicts of interest to declare.

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