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## An overview of harnessing traditional *Ayurvedic* principles with modern techniques in drug discovery

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### Abstract:

Drug discovery has evolved significantly from ancient practices of observing nature to modern sophisticated techniques. Initially, local wisdom from tribal communities, healers, and traditional texts like *Brihatrayees* played a crucial role in identifying effective drugs. Ancient texts like the *Rigveda*, *Yajurveda*, *Atharvaveda*, and classical *Ayurvedic* texts provide a rich historical context. Undocumented plants, or *Anukta Dravya*, continue to be explored for their medicinal potential, expanding the field of ethnopharmacology. The process of drug discovery involves the identification and characterization of molecules capable of safely influencing disease mechanisms, with the ultimate aim of developing efficacious therapeutic agents. Modern advancements, including pharmacogenetics, chromatography, and genomics, build on this foundation. The field has progressed from medicinal chemistry in the 19th century, through molecular modelling and high-throughput screening in the 20th century, to biotechnology and genomics in the 21<sup>st</sup> century, enabling personalized medicine and targeted therapies. Integrating traditional scientific knowledge with modern approaches can enhance innovation in the pharmaceutical industry and lead to novel therapeutic options. Drug discovery involves four stages, from pre-clinical to clinical trials, to test the drug's safety and efficacy. Conventional pharmacological methods such as HPLC-MS, NMR, crystallography, bioassays, and bioinformatics are utilized to guarantee the efficient and secure development of drug. In brief, this review of integrating traditional knowledge with modern advances can open new pathways in providing a comprehensive health coverage to all by establishing guidelines for the safe use of discovered plants and ensuring affordable medicinal products with consistent clinical properties for global acceptance and distribution.

**Keywords:** *Ayurveda*, Drug discovery, Medicinal plant, Ethnopharmacology, Globalization.

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