Commentary

# Network Pharmacological Evaluation of Selected Ayurvedic Medicines

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## DESCRIPTION

The medicinal usage of natural resources has been a part of ancient culture from time immemorial. Research in natural-product chemistry has experienced a pattern of diversified and explosive development, which brings great interest and promise in natural product research for drug design and discovery. Notably, natural products act as a continuous source of bioactive molecules with diversified chemical compositions. Natural products, thus hold and continue to hold a vital role in the drug discovery and development process. Advancement in biotech and pharmaceutics has contributed to a great extent in providing novel and approved drugs to society. The growth of this industry has led to the generation of numerous blockbuster drugs. Recently, the failure of alternative drug discovery approaches to deliver effective lead compounds in the therapeutic field of immunosuppression, metabolic diseases, etc., has led to renewed interest in natural products research.

While the social outlook towards drug potency and safety standards is lifting high and high, the drug productivity measures cannot meet the increasing demands. Natural products have been the basis of disease treatment since ancient times. Ayurveda accounts for a wide array of natural source information with their therapeutic association. The disparity of the Indian subcontinent in geographical landscaping accounts for such diversity of fauna and flora. Thus, the country has a scope to make its place in the international market with its traditional knowledge. Integration of modern scientific approaches and traditional medical knowledge could be helpful for the current drug discovery scenario. Continuous improvements in traditional medicinal research are needed to compete with other drug discovery approaches and keep pace with the ongoing development in the drug discovery procedure.

Natural products have enormous chemical and structural diversity that cannot be matched with synthetic compound libraries and thus continue to inspire novel discoveries in the field of chemistry and medicine. Natural products, including their derivatives, have been an invaluable source of therapeutic agents from historical times and acts as a chief source of lead molecules for new medications. The history of medicine is full of remarkable stories as of how the discovery of natural products has influenced advances in biology and drug discovery.

The source of natural products-based medicines lies in the ground of terrestrial plants, terrestrial microorganisms, terrestrial vertebrates and invertebrates, and marine organisms. Both compounds from aquatic and terrestrial environments have extensive present and future for the treatment of diverse variety of diseases. Plants and plant-based products have been valuable therapeutic agents from historical times and are the chief source of providing lead molecules for new medicines. They have offered their services to humankind either through a) direct usage of the whole plant or part of the plant b) or their bioactive compounds that can be directly used as drugs, e.g., morphine, digoxin.

## CONCLUSION

Also, plants have offered various production platforms for the development of novel immunotherapies and drug-delivery modalities in the form of plant virus nanoparticles like tobacco mosaic virus (TMV) and potato virus X (PVX). The breakthrough in the drug discovery came through the plant of Artemisia annua, for its antimalaria activity in the mouse model. Award of Noble prize for discovery brought the greatest pride, conviction, and optimism to the natural plant product community worldwide. Despite huge investment in this field, only a few anti-cancer drugs have passed the stages of clinal trials to date.

Some have been withdrawn after a few years of usage among those proven safe by the regulatory authorities due to their side effects. Thus, indicating a scenario where the biotech and pharmaceutical industry faces severe challenges due to expensive, critically unsafe and inefficient drug discovery approaches.