

Analysis of phytochemical and antibacterial activity of *Vitex nigrundo* and *Piper betel*

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Abstract

Medicinal plants have been a major source of therapeutic agents since ancient times to cure human disease. Interest in the revival of natural drugs started in last decade mainly because of the wide spread belief that green medicine is healthier than synthetic products. Despite the major advances in the modern medicine, the development of new drugs from natural products is still considered important. In recent times, interest in plant research has increased all over the world owing to its potential use in traditional systems of medicine for treating a wide variety of diseases. Various medicinal plants have been identified and modern scientific approaches have been used to study their authenticity, safety and efficacy of their therapeutic use. The present study focusses on analysis of phytochemical and antibacterial effect of selected two plants i.e. *Piper betel* and *Vitex negundo*. Results shows the presence of the phytochemical components such as tannins, flavonoids, alkaloids, terpenoides, saponins, cardiac glycosides in selected plants. Antibacterial activity was also observed in the given plants. Further, the selected phytochemicals were further analyzed using bioinformatics tools. The results highlight the great potential of medicinal plants in the field of pharmacology.

Introduction

Nature has been source of medicinal agent for thousands of years. Since ancient time, medicinal plants have been used in maintenance of human health (Mentreddy 2007; El and Karakaya 2009). Over 50% of all modern clinical drugs are of natural product origin (Newmann and Cragg 2007). The most ancient and susceptible nutraceutical medical science originated from India. Indian medicinal herbs are unique in their own way and quite exclusive and drivers in nature. Plants are the main medicinal source to treat infectious disease, about fifteen thousand medicinal plants have been identified and many are in regular use (Balunas and Kinghorn 2005). The natural products play an important role in pharmaceutical industry. The different system of medicine that are practiced in India are Ayurveda, Siddha, Unani and Local health organization, utilize a large number of plants for the treatment of human diseases. Most of these medicinal plants have been identified and their uses are well documented and describe by different author (Saad et al. 2005; Lwu 2014). The interest in the study of medicinal plant as source of active compound has increased worldwide. In India, almost all plant are of medicinal importance and the application of these medicinal plants especially in traditional medicine is well known.

Plants are recognized for their ability to produce a wealth of phytochemicals. Phytochemical techniques are utilized to screen and analyze bioactive components. It is not only applied for the quality control of crude drugs, but also for the elucidation of their therapeutic mechanisms. The most common phytochemicals that have been observed in medicinal plants are polyphenols, phytosterols, alkaloids, and saponins. The Ayurvedic system has describe a large no of such medicine based on plant and plant products and determination of their morphology and pharmacological character can provide a better understanding of their active principle and mode of action.

Plants are rich in wide varieties of secondary metabolites, such as tannins, terpenoides, alkaloids and flavonoids which have been found in vitro to have antimicrobial properties. Plants used for traditional medicine contain a wide range of substance that can be used to treat chronic as well as infectious diseases. Extraction of bioactive compounds from medicinal plant permits the demonstration of their physiological activity. It also facilities pharmacology studies leading to synthesis of more potent drug with reduced toxicity.