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Review Article
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MEDICINAL ATTRIBUTES OF FAMILY *RUBIACEAE*

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ABSTRACT

Large number of medicinal plants has been extensively screened for biologically active molecules with an intension of finding new drugs for treating different diseases.A number of medicinal plants have been evaluated for their healing potentials most of them have shown their protective effects against several diseases. Drug discovery from medicinal plants comprise a multifaceted approach of combining Botanical, Phytochemical, Biological, and Molecular techniques. The Present study was aimed to know the importance of phytochemical, antimicrobial and pharmacological activities of Rubiaceae species, so noticed that drug discovery dependsup on the preliminary and basic analysis.

KEY WORDS

Rubiaceae, Phytochemical, Antimicrobial, Pharmacological.

INTRODUCTION

Medicinal plants have been used in traditional health care systems since prehistoric times and are still the most important health care source for the vast majority of the population around the world. Nature itself has a source of medicinal agents for thousands of years and an outstanding number of modern drugs have been isolated from natural sources, many based on their use in traditional system of medicines.[1] However, recent evidences from the pharmaceutical companies' shows that for some complex diseases, natural products still represent an extremely valuable source for the production of new chemical entities[2]. Medicinal plants play a vital role for the development of new drugs. During 1950-1970 approximately 100 plants based drugs were introduced in USA including deserpidine, reseinnamine, vinblastine and vincristne which are derived from higher plants.

In order to find new sources of plant drugs, number of plants has been screened for various biological activities in various search institutions. In India, about 3,000 plants parts from 2764 plants species have been screened for their pharmaceutical and chemotherapeutic properties. The Central Drug Research Institute (CDRI), Lucknow, India has screened over 3,800 plants for a wide range of biological activities in the past 25 years. A vast wealth of medicinal plant sources is still under utilization for curing a number of diseases [3]. Recently several authors have made pharmacological studies on different plant parts [4].

PHYTOCHEMICALS

Rubiaceae of various flowering plants called the madder family, bedstraw family or coffee family. Rubiaceae family is a large family of 630 genera and about 1300 species found worldwide, especially in tropical and warm regions. Many

Rubiaceae family plants exhibited antimalarial, antimicrobial, antihypertension, antidiabetic, antioxidant, and anti-inflammatory activities. Bioactive compounds including indole alkaloids, terpenoids and anthraquinones have been isolated from these plants. Various natural products occur in Rubiaceae plants. Extensive phytochemical investigation has been realized regarding the natural occurrence of terpenoids, anthraquinones and indole alkaloids in the family. The occurrence of alkaloids in some Rubiaceae members is well documented. Phytochemical analysis of *Canthium horridum* was reported [5]. *Canthium multiflorum* extracts revealed the presence of several chemical compounds such as alkaloids, terpens and tannins. [6] Chemical constituents of the stems of *Canthium simile* was reported [7].

Canthium mannii plant bark extracts comprise nematicidal activity and valuable secondary metabolites such as alkaloids and saponins[8]. In Rubiaceae family species, phytochemical screening has shown that in *Rytigynia nigerica* some bioactive compounds such as tannins, saponins, reducing compounds, steroids, and flavonoids are present. In *Rytigynia umbellulata*, alkaloids, tannins, saponnins, reducing compounds, and flavonoids were present.[9] *Borreria* and *Spermacoce* species has alkaloids, iridoids, flavonoids and terpenoids[10]. *Canthium multiflorum* leaves exhibits high value phytochemicals like Saponins, Tannins, Flavonids, Alkaloids, Proanthocyanidins, Anthracenosides, Coumarins, Terpenoids, Sterols and Carotenoids.

Antimicrobial activity

The antimicrobial nature of the plants has been attributed to the wide variety of compounds they synthesized. The screening of bioactive compounds has always been great interest to scientist liking for new source of drugs useful in the treatment of infectious diseases.*Canthium multiflorum* showed potent antimicrobial activity against *Escherichia coli, Enterococcus faecalis, Bacillius cereus, Proteus misrabilis, Staphylococcus aureus, Staphylococcus camorum, Shigella dysentrica, Salmonella enterica, Pseudomonas aeruginosa, and Staphylococcus pyogens* of various bacteria tested for antibacterial activity. Asase*et al*., 2008[11]found more inhibition of both Gram positive and Gram negative bacteria by the acetone extract of *Mitragyna inermis. Adomi,* 2008[12] screened and observed high zone of inhibition using the aqueous extract of *Morindalucida.* The wild plants ethanolic extract of *Canthium coromandelicum* shows a broad spectrum of antimicrobial activity against *Salmonella typhi* and antifungal activity showed against *Candida albicans.*[13]

Pharmacological activities

Borreria and *Spermacoce* species of Rubiaceae as well as their isolated compounds possess diverse biological activities, including anti-inflammatory, antitumor, antimicrobial, larvicidal, antioxidant, gastrointestinal, anti-ulcer, and hepato protective, with alkaloids and iridoids as the major active principles.[14]

Rubiaceae species were a valuable source of new secondary metabolites for medical purposes. Reports for biological activity of Rubiaceae species are numerous, but phytochemical investigations have been conducted only on a few species such as *Nauclea latifolia, Nauclea pobeguinii, Mitragyna inermis, Pterocarpusbussei.* Crude extracts of these plants have been found to have antibacterial activity. Indeed, antimicrobial property of Rubiaceae may become an useful tool in treating opportunistic infection.

Cytotoxicity

About 3000 plants has anticancer properties are subsequently used as potent anticancer drugs. Based on the previous reports, it is realized that the Rubiaceae species such as *Morinda lucida* and *Nauclea latifolia* has showed potent cytotoxic activities. [15]

CONCLUSION

However, recent evidences from the pharmaceutical companies' shows some complex diseases, natural products still represent an extremely valuable source for the production of new chemical entities. Phyto pharmacological screening of medicinal plants and their extracts will reveal their presence of valuable compounds and provide insight into new ways of treatment with new drugs.

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