ABSTRACT

The present work pertains to the “Search for Novel Antibiotics to cure skin diseases caused by Environmental pollution”.

Pollution does have a severe impact on human health and environment. The incidences of various diseases are becoming prominent with the increasing rate of population. The diseases primarily comprise respiratory disorders, cardiovascular disorders, skin infections, throat inflammation etc. Long before mankind discovered the existence of microbes, the idea that certain plants had healing potential indeed that they contained what we would currently characterized as antimicrobial principles was well accepted. Since antiquity man has used plants to treat common infectious diseases and some of these traditional medicines are still included as part of the habitual treatment of various maladies. Furthermore, the active compounds of herbal remedies have the advantage of being combined with many other substances that appear to be inactive. However these complementary components give the plants as a whole a safety and efficiency much superior to that of its isolated and pure active components.

Antibiotic resistance has become a global concern. With the development of antimicrobials, microorganism have adapted and become resistance to previous antimicrobial agents, largely due to indiscriminate use of commercial antimicrobial drugs commonly employed in the treatment of infectious diseases. This has forced scientist to search for new antimicrobial substances from various sources and they thus proposed in future the strain number of tested microorganism, the composition of medicinal plant and the condition under which it was obtained be included as an integral part of the report.

Therefore, in present project work attempts have been made to Gymnema sylvestre R.Br. (gudmar), Adiantum lunulatum Burm. f. (Hasraj), Bryonia laciniosa L. (shivlingi), Tectona grandis L. f. (sagwan), Viola odorata L. (banpasha), Dashmool, Solanum xanthocarpum SCHRAC&WENDLE (pasarkateli), Withania coagulans (Stoacks) Dunal (paneerphal) each belonging to different families was
evaluated for antibacterial and antifungal potentials. In these drugs few are established medicinal plants still they were screened in a sequential manner through various successive extractions and then these were analyzed for antibacterial and antifungal potentials.

In Ayurvedic texts it has been mentioned that many herbs have the potentials to cure the disease. To justify the claims made in Ayurveda, its antimicrobial activity was checked and results were expressed in terms of zone of inhibition (in mm). Microbial strains were multiple drug resistance strains of both bacteria and fungi explained. Various successive extracts of drug powder and all the drugs individually were screened for antimicrobial activity against various bacteria and fungi and it was found that the drug powder is more efficacious as compare to the individual use of single drugs that means these results justify the use of combination of these drugs ages as antimicrobial agent. During MIC determination, the lowest MIC’s were obtained of the plants, indicating that the microbial strains were more sensitive to the extracts.

Preliminary phytochemical screening of selected drugs indicates the presence of Reducing sugar, Terpenoids, Flavonoids, Tannin and Saponin. Phytochemical analysis using thin layer chromatography (TLC) and high pressure liquid chromatography (HPLC) to generate fingerprints as “chemical markers” in standardization using overlay views of HPLC chromatograms to evaluate the quality control. Various bioactive compounds such as β-Sitosterol, Stigmasterol and Lupeol have been qualitatively and quantitavely studied in the selected species. Furthermore, spectroscopic analysis (NMR chromograms) of various extracts and its adulterants was carried out to generate modern “chromoprints as markers”.

These studies reveal that the amount of antibiotic agents will definitely enhance the antimicrobial potentials of drugs so it can also use as herbal medicine in near future. These drugs will be safe and cure from various diseases so most of the future generation will go for such drugs which will also helpful to protect from skin diseases.
In our present research work, it was noted that *V. odorata* L. (banpasha) and dashmool have potential antibiotic activity more than standards as a future source of drug than other medicinal plants selected during my research work. MIC values also showed their potentials as antibiotics. Therefore, these ayurvedic preparations can work as therapeutic targets in future. Even the synergistic role of various drugs in a therapy is more important than their individual target. Besides, these are not toxic and play an important role in ayurveda for longevity since ages. Now days, use of herbals to cure various diseases is an urgent need to prove their efficacy as antibiotics for future generations. Not only to prove their efficacy as antibiotics but also usefulness against mdr (Multiple Drug Resistant) for curing various microorganisms are which resistant to other drugs.

Further, more or less all the selected Indian Medicinal Plants have also possessed antimicrobial potentials against all test bacteria and fungi which explains that their use in daily life will generate a resistant or immunity to fight against microorganisms. Methanolic extracts of certain Indian Medicinal Plants showed promising antimicrobial potentials against selected test bacteria and fungi. The main aim of these studies is to validate and authenticate the antimicrobial potentials of certain plants and simultaneously, justify their use in the daily diet to cure mankind from certain ailments.