Phytochemical Screening of Medicinal Plants Available in KBN College

Natural products have been playing a vital role in health care for decades. Of the different sources of natural products, plants have been a source of chemical substance, which serves as drugs in their own right or key ingredients in formulation containing synthetic drugs. The process that leads from the plant to pharmacologically active, pure constituent is every long and tedious and requires a multidisciplinary approach. The selection of the plant species is a crucial factor for the ultimate success of investigation. Through random selection gives some hint, targeted collection based on chemotaxonomic relationships and ethnomedical information derived from Tradition Medicine are more likely to yield pharmacologically active compounds.

Though the advances in modern medicines are significant, there remains an ever increasing demand for herbal medicines. Effective and potent herbal medicines require evaluation by standard scientific methods so as to be validated for the treatment of diseases. The presents of patent laws have increased the necessity to preserve the claims of these time-tested folk medicines. Thus, it has become imperative to initiate steps to document components and activity of these medicinal plants. The liver regulates any important metabolic functions. Hepatic injury is associated with distortion of these metabolic functions. It is exposed to xenobiotics, because of its strategic placement in the body. The toxins absorbed from the intestine tract gain access first to the liver, resulting in a variety of liver ailments. Thus, liver

diseases remain one of the serious health problems. Modern medicines have little to offer for alleviation of hepatic disease and it is chiefly the plant based preparations which are employed for the treatment of liver disorders. Hence, in the present study, we were interested in carrying out a systemic Phytochemical and biological evaluation of Commelina clavata, Kigelia africana and Spathodea campanulata were used traditionally for the treatment of liver disorders. The plants were evaluated for their anti-oxidant and hepatoprotective properties. Phytochemical investigation will be a useful tool for the identification and authentication of the plant for industrial and further research purpose. Total phenol content of a tested material is related to the antioxidant activity. Antioxidants, which can scavenge free radicals, have an important role in pharmacological systems. Antioxidants are emerging as prophylactic and therapeutic agents. Hence, antioxidant was also evaluated for the potent extract.

- To select plant based on their ethnomedical uses and preparation of their extracts.
- To screen Phytochemical profile.
- To screen the selected extract for antioxidant using various in vitro methods

Plan of Work:

- **Phase-I: Collection and authentication of the plant materials.**
- **Phase-II: Phytochemical studies**

  Preparation of extracts

  Analytical: Qualitative (primary and secondary metabolites), and elemental analysis.
- **Phase–III: In vitro antimicrobial** Studies

  Agar Well Diffusion Method

  Czpectose Diffusion Method
- **Phase IV: In vitro Antifungal studies**

  Agar Disc Diffusion Method
- **Phase V: In vitro Antioxidant Studies:**

  The FRAP (ferric reducing *antioxidant* power) *method*
- **Phase–VI: Pharmacological screening of the active extracts of**

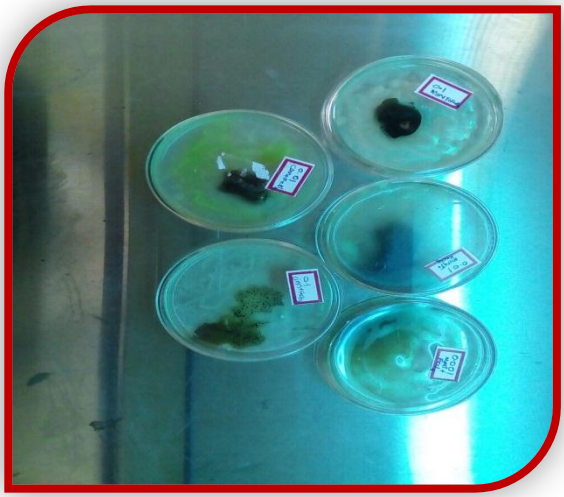
  Chlorophytum Borivilianum, Nelumbo Nucifera Seeds, Ficus Bengalensis, psoralea corylifolia, hemidesmus indicus, achyranthes aspra, of phyllanthus nirruri, eclipta alba, tribulus terristris, asparagus rasemosusstem, Achyranthes aspera, of IXCORA COCCINEA, Samanea saman, Mimusops Elengi, Pedicularis bicornutsa, Urena Lobata, Tephrosia Purpurea, Alstonia Macrophylla, Pongamia pinnata, Asparagus officinalis.
- **Phase VII:** Quantitative Estimation of phytochemicals in the active extract by UV-Visible Spectrophotometric Method:

Anti-Bacterial Study

Phytochemical extraction from Soxhlet Apparatus

Anti-Fungal study

Phytochemical extraction from Soxhlet Apparatus



Anti-Oxidant Study

Observing Jone of Inhibition in Microscope

Anti-Fungal Study

Phytochemical Screening

M. Sivakishore, Lecturer in PG Chemistry guiding the Students

Smt. O. Sailaja, Lecturer in PG Chemistry guiding the Students

Results of the Acivity

Preliminary Phytochemical Screening of Asparagus racemosus in Various Extracts

S.NO	Secondary Metabolites	Hexane	Methanol	Water
1	Alkaloids(Wangers test)	+ve	+ve	+ve
3	Saponins(Foam test)	-ve	-ve	-ve
4	Glycosides	-ve	-ve	+ve
5	Tanins	+ve	+ve	+ve
6	Quinones	+ve	+ve	-ve
7	Phenols (ferric cyanide test)	-ve	-ve	-ve
8	Carbohydrates (Fehling test)	-ve	-ve	-ve
9	Flavanoids (Ferric chloride test)	+ve	-ve	+ve
10	Resins	+ve	-ve	+ve
11	Steroids (Salkowski test)	-ve	-ve	-ve

Physico- Chemical evaluation for diffferent extracts of Nelumbo nucifera seeds

S NO	SECONDARY METABOLITES	Hexane	Acetone	Water
1	Alkaloids (Wagner's test)	-ve	+ve	+ve
2	Terpenoids (Foam test)	+ve	-ve	+ve
3	Saponins (Legal's test)	+ve	-ve	-ve
4	Glycosides (Legal's test)	-ve	-ve	+ve
5	Tannins (General color test)	-ve	-ve	-ve
6	Quinone (Rhodanine test)	-ve	-ve	+ve
7	Phenols (Ferric chloride test)	-ve	-ve	+ve
8	Carbohydrates (Fehling's test)	+ve	+ve	-ve
9	Flavanoids (Ferric chloride test)	-ve	-ve	+ve
10	Resins (Libermann test)	+ve	+ve	+ve
11	Steroids (Salkowski test)	-ve	+ve	+ve

Physico-Chemical evaluation for different extracts of Phyllanthusnirruri

S.NO	Secondary Metabolites	Hexane		Methanol		AQUEOUS	
		KBN College	Ambapuram	KBN College	Ambapuram	KBN College	Ambapuram
1	Alkaloids(Wagner's test)	-ve	-ve	-ve	-ve	+ve	+ve
2	Terpenoids(Foam test)	-ve	-ve	-ve	+ve	+ve	-ve
3	Saponins(Legal's test)	-ve	-ve	+ve	+ve	+ve	+ve
4	Glycosides(Legal's test)	+ve	+ve	+ve	+ve	+ve	-ve
5	Tannins(General colour test)	+ve	-ve	-ve	+ve	+ve	+ve
6	Quinone(Rhodanine test)	-ve	-ve	-ve	+ve	-ve	-ve
7	Phenols(Ferric chloride test)	-ve	-ve	+ve	+ve	+ve	+ve
8	Carbohydrates(Fehiling's test)	-ve	+ve	-ve	-ve	-ve	+ve
9	Flavanoid (Ferric chloride test)	-ve	-ve	+ve	+ve	+ve	+ve
10	Resins(Libermann test)	-ve	+ve	+ve	+ve	-ve	-ve
11	Steroids(salkowski test)	-ve	-ve	-ve	+ve	+ve	-ve

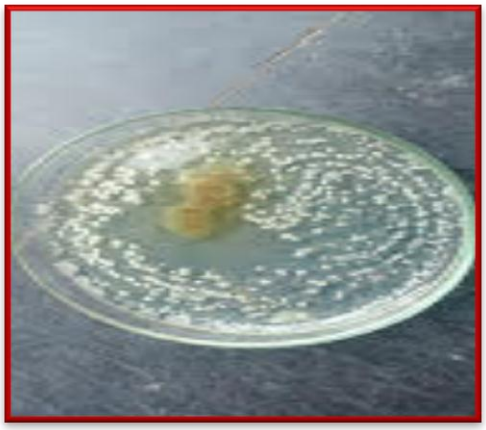
Phytochemical screening for the presence of different phytoconstituents in Eclipta alba leaves extract fractions

S.NO	Secondary Metabolites	Hexane	Methanol	Aqueous
1	Alkaloids (Wagner's test)	+ve	-ve	+ve
2	Terpenoids (Foam test)	-ve	-ve	-ve
3	Saponins (Legal's test)	+ve	+ve	-ve
4	Glycosides (Legal's test)	+ve	+ve	+ve
5	Tanins (General colour test)	-ve	-ve	-ve
6	Quinones (Rhodanine test)	-ve	-ve	-ve
7	Phenols (Ferric chloride test)	-ve	-ve	-ve
8	Carbohydrates (Fehiling's test)	-ve	-ve	+ve
9	Flavanoids (Ferric chloride test)	-ve	+ve	-ve
10	Resins (Libermann test)	-ve	-ve	-ve
11	Steroids (salkowski test)	-ve	-ve	+ve

Antibacterial Activity:

The antimicrobial activity was assessed using the agar disc diffusion method by measuring the diameter of growth inhibition zones with concentration of different solvent extracts. The result showed that the methanol extract exhibited broad spectrum of inhibition zones against Gram positive bacteria (Streptococcus and staphylococcus species). The results obtained from the disc diffusion method showed that there has been an increasing effect on

microbial growth inhibition with increasing concentration of the extract. The extract showed good inhibitory activity on almost all the microbes tested.



S.NO	Secondary Metabolites	Hexane	Chloroform	Methanol
1	Alkaloids (Wagner's test)	+ve	+ve	+ve
2	Terpenoids (Foam test)	-ve	-ve	-ve
3	Saponins (Legal's test)	-ve	-ve	-ve
4	Glycosides (Legal's test)	-ve	-ve	+ve
5	Tannins (General colour test)	-ve	-ve	+ve
6	Quinone (Rhodanine test)	-ve	-ve	-ve
7	Phenols (Ferric chloride test)	-ve	-ve	-ve
8	Carbohydrates (Fehiling's test)	-ve	-ve	-ve
9	Flavanoids (Ferric chloride test)	-ve	-ve	+ve
10	Resins (Libermann test)	-ve	-ve	-ve
11	Steroids (salkowski test)	-ve	-ve	-ve