ABSTRACT

The rustics of Parbhani district are good at knowledge of herbal wealth and related vegetation in the immediate vicinity. The rural communities have staunch confidence in ethnomedicine.

Plant medicines are alternating choice to modern synthetic drugs, having minimum side effects and are supposed to be safe. The use the plant parts in form paste, juice, decoction, powder; infusion etc. used to cure various diseases. However, the present medicinal methods do not agree the potential of phytomedicine unless this wisdom is experimentally assessed.

The standardization of natural product is an integral part of pharmacology. It can be done through pharmacognosy. Pharmacognosy is a simple and reliable tool, by which complete information of the crude drug can be obtained. It helps in identification and authentication of the plant material and quality of herbal medicine.

Curative properties of medicinal plants are mainly due to the presence of various chemical compounds i.e. secondary metabolites like alkaloids, glycosides, flavonoids, saponins, tannins, carbohydrates and essential oils etc.

The search for agent to cure diseases began long before people were aware of existence of microbes. The research of new plant based natural products is on the basis of their ethno medicinal uses. In the present study during ethno botanical exploration, it was noticed that the rustics were using members of Cucurbitaceae as medicine and vegetable.

Therefore, it was decided to screen the plant phytochemicals and to assess their antimicrobial efficacy. Taking into consideration the phytomedicinal importance five plants were selected for the study. The plants are Coccinia grandis, Lagenaria siceraria, Trichosanthes tricuspidata, Diplocyclos palmatus and Cucumis setosus.

Objective of the study:

i). Collections of plants  
ii). Phamacognostic study  
iii). phytochemical screening  
iv). Thin layer chromatography  
v). High performance liquid chromatography  
vi). Antimicrobial assay of selected plants.

The macroscopical and microscopical studies were performed which involve surface characters *i.e.* stomatal complex, trichome complex and internal structure of stem and leaf. The stem vessels also studied. Stomatal index, palisade ratio, vein islet number and vein let termination number also recorded.
Anatomy of stem and leaf provides an important pharmacognostical parameter for identification and for determination of adulteration in a drug. In present study internal structure of stem and leaf was performed. The moisture content percentage of a drug indicates preservation ability of that powdered drug. Total percentage of acid insoluble ash of the dry weight of crude bark drug

Preliminary screening of phytochemicals of ethno medicinally used drugs of selected plants were used for detection of phytochemicals like alkaloids, glycosides, flavonoids, tannins, triterpenoids, cardiac glycosides, steroids, saponins and also detection of inorganic constituents like calcium, magnesium, sodium, phosphorus, potassium and iron were studied. For separation and confirmation of phytochemicals chromatographic process was performed.

The TLC method was used for detection of flavonoids from crude extracts of selected plant parts. The flavonoids rutin and quercetin were detected.

The HPLC was performed for the quantification of flavonoids in studied plants. In the present observation rutin was detected in fruit and leaf of studied plants. The quercetin is noticed only in *Coccinia grandis* and *Diplocyclos palmatus* fruit.

Qualitative phytochemical analysis is performed in five different solvents of fruit, leaf, stem and root extracts of selected plants. The antimicrobial efficacies of crude extracts were compared with phytochemicals and reference antibiotic Cephaloxine for confirmation of ethno medicinal claims.

The present study antimicrobial assay of leaf and fruits of selected plants were carried out to assess the microbial efficacy. Five different solvent extracts were screened for their antimicrobial activities. However, it was noticed that the maximum antimicrobial activity of was observed in aqueous, methanol and ethanol extracts. Earlier studies reveal that the fruits of Cucurbitaceae possessing antioxidant properties, therefore, in spite of the objective of current study and curiosity the antioxidant activity also performed.

The observations and results of above studies were depicted in respective chapters.