PROSPECTUS OF THE RESEARCH

The family Cucurbitaceae is fairly large, its species are used as a fruit vegetables, which are considered to be rich in vitamins and nutritive values. Most of the species of the family bears medicinal importance, used in ayurvedic preparation. During ethno medicinal survey it is observed that the rustics of Parbhani district using cucurbitaceous plans to cure various diseases. The curative properties of the plant are due to phytochemicals. Therefore, it is thought essential to screen the plant phytochemicals and to assess the antimicrobial efficacy, for the present study on the basis of ethno medicinal uses five wild plants are selected namely: Coccinia grandis, Lagenaria siceraria, Trichosanthes tricuspidata, Diplocyclos palmatus and Cucumis setosus to assess pharmacognostical.

The epidermal characters of studied plants may provide most valuable criteria for identification of plants at species level. The trichomes are used for taxonomic considerations and pharmacognosticaly they are used in the evaluation and detection of adulteration in drugs.

Anatomy of stem and leaf of studied plants provides an important pharmacognostical parameter for identification and determining adulteration of drugs. In present study internal structure of stem and leaf was performed.

In present study it is observed that the fruit has maximum percentage of minerals. The fruits of Coccinia grandis are rich in Manganese, Zinc, Phosphorus and Potassium; the fruit of Trichosanthes tricuspidata has maximum amount of Copper, Manganese, Zinc and Potassium. The fruit of Diplocyclos palmatus and Cucumis setosus contains maximum amount of Copper, Phosphorus and Potassium. The leaf of Lagenaria siceraria contains maximum percentage of Copper, Iron, Manganese and Phosphorus.

The selected plants of present study are wild in occurrence, bitter in taste they are not used in vegetables but they have medicinal importance in rural healthcare system.

The present study has thrown a light on the mineral contents and concluded that the selected plants bears medicinal properties and in addition to this they are the cheap source of getting large amount of minerals.

Ph. D. Thesis: Miss Sandhya V. Rodge, 2015
The phytochemical screening of studied plants reveals the presence of all screened compounds. The alkaloids which are medicinally important they are bear analgesic, anti malarial, anti inflammatory and anti diarrheal properties. The fruit, leaf, stem and root extracts of studied plants possess alkaloid. These plants may be useful to generate an effective low cost phytomedicine against various diseases.

In present study flavonoids are detected in different solvents of leaf and fruit extracts of all studied plants. The flavonoids are the major source for the development of potential drugs against cancer and allergic diseases. These plants may become a source to raise a novel herbal drug against such dreadful diseases.

The cardiac glycosides are detected in all studied plants in all solvent extracts of studied organs. It is interesting to note that the cardiac glycosides are used to cure heart diseases, so these plants may become the cheapest source to develop cardio protective medicine by further pharmacological studies in future.

The saponins are detected in all studied plants in different extracts. Saponins are abrotificient and antimicrobial in nature. The formulation of studied plants may helpful in the development of drugs against diseases caused by microorganisms.

Tannin is detected in studied plants, it possesses anti tumor and antimicrobial properties, from these studied plants low cost diseases curative drugs may be developed for human healthcare.

The studied plants are wild in habitat and having maximum precipitation of triterpenoids, these plants may be the source for development generic medicine to treat disorders.

In present study during TLC and HPLC analysis the flavonoids rutin and quercetin are detected. The present observation ruin is detected in fruit and leaf of studied plants. The quercetin is noticed only in Coccinia grandis and Diplocyclos palmatus fruit. The rutin and quercetin are antioxidant and anti-inflammatory in nature and are considered to be effective in prevention of oxidative stress related diseases such as cancer and heart diseases. Taking into notice the availability and occurrence of these studied plants they may provide low cost medicine for human healthcare.
Chapter 12: Prospectus of the Research

The antimicrobial assay of the present study shows the inhibitory activity against test organisms i.e. *E. coli* cause kidney, skin diseases and urinary tract infection. On the basis of ethnomedicinal uses, the *Lagenaria siceraria* and *Cucumis setosus* are used to treat above diseases and the fruit and leaf extracts of these two plants are inhibitory to *E. coli*. This study confirms the ethnomedicinal claims of rural people. Therefore, present study concludes that the *L. siceraria* and *C. setosus* may be useful in the development of effective drugs against above diseases.

*S. aureus* cause skin diseases and pneumonia in present study it is observed that different solvent extracts of studied plants develops sensitivity to *S. aureus*. The *S. typhi* cause typhoid and it is sensitive to the *Diplocyclos palmatus*, the *S. shigella* causes dysentery and diarrhea, the joint pain, muscle pain allergies are caused by *C. albicans* and it is sensitive to all studied plant extracts. Therefore, a present phytochemical and antimicrobial study could be a new source to overcome multi resistant adoptability of microorganisms.

Antioxidant analysis of present study reveals that the maximum DPPH antioxidant assay percentage is present in fruits of *Coccinia grandis* 72.14 ± 0.52, *Trichosanthes tricuspidata* 65.00 ± 1.00, *Diplocyclos palmatus* 60.33 ± 0.25 and *Cucumis setosus* 59.66 ± 1.52 which was more than that of standard ascorbic acid.

The free radicals formed during various metabolic processes can be removed by antioxidants. The fruits of studied plans bear antioxidant properties and are the cheapest source for antioxidants.

Lastly, the studied plants are rich in minerals, bears antimicrobial potential, phytochemical compounds and having antioxidant properties. The plants are wild in occurrence easily available. These plants may be studied pharmacologically to generate low cost generic medicine for human healthcare.