SUMMARY AND CONCLUSIONS

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 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.

These plants were studied macro and microscopically. The microscopically studies involves surface characters i.e. stomatal complex and trichome. The anatomical structure of stem and leaf and stem vessels were studied. Stomatal index, palisade ratio, vein islet number and vein let termination number were recorded.

The surface data i.e. epidermal cells of studied plants have normal cell wall. The shape of epidermal cells at adaxial surface is squarish in C. grandis; it is hexagonal in L. siceraria. The cell walls are sinus in D. palmatus and T. tricuspidata while in C. setosus the epidermal cell are polygonal.

Epidermal cells at abaxial surface are sinus in C. grandis, D. palmatus, C. setosus; they were hexagonal in L. siceraria and irregular in T. tricuspidata. The side walls of epidermal cell were wavy.

Leaves of L. siceraria, T. tricuspidata are amphistomatic with anomocytic stomata. The stomatal frequency of studied plants varies from 18-24, stomatal index was 8-12 and the epidermal cell frequency was120-240 on adaxial surface. While on abaxial surface the stomatal frequency was 20 to 32, stomatal index was 12.7 to 26 and epidermal cell frequency was 160 to 290.

The trichomes of the studied plants are confined to both the surfaces. Trichomes are mostly uniseriate and multicellular. The dermal characters help in the detection of adulteration in crude drug. The epidermal characters are useful for the classification and identification of plants at species and family level.
The palisade ratio is high in *C. setosus* and it is least in *T. tricuspidata*. Palisade ratio is used in the evaluation of a drug.

The vein let termination number is least *C. setosus* and high in *D. palmatus*, *C. grandis*, *L. siceraria* and *T. tricuspidata*.

The vein islet number is usually constant for species and it can be used as a specific character. The value of palisade ratio, vein islet number, and vein let termination number is unique for each plant which is usually inelastic character. It provides valuable data in confirmation and identification of crude drug and its adulteration.

The stem anatomy of studied plants has angular epidermis. The collenchymatous hypodermis is present beneath the epidermis and vascular bundles are conjoint, bicollateral, open and arranged in ring. Secondary tissue was well developed with small pith.

Leaf anatomy of all selected plants reveals the presence of thick cuticle with trichomes. Leaves are dorsiventral with well differentiated mesophyll tissue. The vascular bundles of midrib were bicollateral. The collenchymas were well developed in midrib region. Anatomy of stem and leaf provides an important pharmacognostical parameter for identification and determining adulteration of drugs.

The vessels are moderately longer and their lateral wall thickenings are spiral to scalariform. The vessel end walls are oblique and transverse with simple to multiperforation plates in *L. siceraria* and *C. setosus*. But vessels of *T. tricuspidata* have the end wall plate oblique with simple perforation plate and other end wall is transverse with simple perforation. The vessel end wall plate is oblique and transverse with monoperforation plate in *D. palmatus*. Whereas the end wall plate was oblique, transverse with monoperforation plate in *C. grandis*.

Moisture content of leaf drug of *C. grandis* was very less i.e. 1.25 %, while *T. tricuspidata* showed high moisture contents i.e. 18.6%. The moisture content was moderate in *L. siceraria*, *D. palmatus* and *C. setosus* i.e. 4.50%, 2.90%, and 3.80 % respectively.

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Moisture content of fruit drug of *C. grandis* was very less i.e. 2.05 %, while *D. palmatus* showed high moisture contents i.e.16.39%. *L. siceraria, T. tricuspidata* and *C. setosus* shows moderate moisture contents i.e. 3.42%, 9.32% and 13.65 % respectively. It is considered that the moisture content increases the preservation ability of crude drugs.

Total ash of *D. palmatus* was less i.e. 8.41% of the dry weight while total ash *C. setosus* of was high i.e. 16.43% of the dry weight. In *T. tricuspidata* acid insoluble ash was 2.37% while in *D. palmatus* was 6.49% of the total ash. In *L. siceraria, C. grandis, C. setosus* it was 4.31%, 3.42% and 3.59% respectively. In *T. tricuspidata* water soluble ash was 7.25% while in *L. siceraria* it was 2.56% of the total ash. In *C. grandis, C. setosus* and *D. palmatus* it was 6.83%, 6.47% and 3.26% respectively. The water soluble extractive of *C. setosus, T. tricuspidata, C. grandis* was higher i.e. 16.81%, 15.52 % and 14.32% of the dry weight respectively, while it was 13.76% and 12.53% in *L. siceraria* and in *D. palmatus* respectively. Alcohol soluble extractive of *C. setosus, L. siceraria* was higher i.e. 12.75 % and 11.73% respectively while it was 10.43%, 9.41% and 8.67% in *D. palmatus, C. grandis* and *T. tricuspidata* respectively.

The present observation the total ash of *T. tricuspidata* was less i.e.10.46% of the dry weight, while total ash of *L. siceraria* was high i.e. 15.76% of the dry weight. The detection of total ash content of a drug is important to detect the impurities present in a drug.

The acid insoluble ash was 1.02% in *C. grandis* while in *C. setosus* it was 4.19% of the total ash. In *L. siceraria, T. tricuspidata, D. palmatus* it was 2.02%, 2.43% and 3.25% respectively.

The water soluble extractive of *T. tricuspidata, C. setosus, D. palmatus* was higher i.e. 16.60%, 14.32% and 12.42% of the dry weight respectively, while it was 9.71% and 6.74% in *L. siceraria* and in *C. grandis* respectively.

Alcohol soluble extractive of *T. tricuspidata* and *D. palmatus* was higher i.e. 12.60% and 11.25% while it was 10.25%, 8.2% and 7.2% of the dry weight in *C. setosus, L. siceraria* and *C. grandis* respectively.
Detection of Mineral Content

Minerals are necessary for the growth of plants and they possess nutritional value. In present study the detection of minerals is performed, the *Coccinia grandis* leaf has maximum percentage of Iron 7.8% and 0.328% of Cu. The stem contain 0.576% of Zinc, and fruit has 1.676% of Iron, 0.336% of Manganese, 0.690% of Zinc, 0.772% of Phosphorus and 0.342% of Potassium. The root has 0.45% of manganese and potassium 0.431%.

The *Lagenaria siceraria* leaf contains maximum percentage of minerals i.e. 0.326% of Copper, 10.407% of Iron, 0.632% of Manganese and 0.342% of Phosphorus. The stem has maximum percentage of Zinc 0.570%, the root and fruit contains fewer amounts of minerals than other plant organs.

The mineral determination of *Trichosanthes tricuspidata* reveals the maximum percentage of Copper 0.116%, Iron 3.553%. Manganese 0.325% Zinc 0.115%, Phosphorus 0.115% and potassium 1.352% is detected in fruit. While in other organs the minerals are in fewer percentages than the fruit.

The *Diplocyclos palmatus* reveals the fruit contain maximum percentage of 0.297% of Manganese, 0.50% of Zinc, 2.472% Potassium. The stem contains maximum percentage of Copper 0.198% and Iron 5.30%. The leaf has maximum percentage of phosphorus 0.263%. The root has traces of minerals.

The mineral determination of *Cucumis setosus* reveals the fruit contains maximum percentage of minerals i.e. Copper 0.42%, phosphorus 0.21% and Potassium 1.342%. The root contains maximum amount of Iron 11.78% and Manganese 0.519%. The stem has maximum amount of Zinc 0.529%.

The determination of minerals study of selected medicinal plants of Cucurbitaceae reveals that the fruit has maximum percentage of minerals. The *Coccinia grandis* has 0.336% of Manganese, 0.690% of Zinc, 0.0772% of Phosphorus and 0.342% of Potassium. The fruit of *Trichosanthes tricuspidata* is rich in Copper 0.116%, Iron 3.553%. Manganese 0.325% Zinc 0.115%, Phosphorus 0.115% and Potassium 1.352% is detected in fruit. The *Diplocyclos palmatus* fruit contain maximum percentage of 0.297%
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of Manganese, 0.50% of Zinc, 2.472% Potassium and the fruit of Cucumis setosus has maximum percentage of minerals i.e. Copper 0.42%, phosphorus 0.21% and Potassium 1.342%.

The leaf of Coccinia grandis contains maximum percentage of Iron 7.8% and 0.328% of Cu and the leaf of Lagenaria siceraria contains maximum percentage of Copper 0.326%, Iron 10.407%, Manganese 0.632% and Phosphorus 0.342%.

The stem of Coccinia grandis contain maximum amount of Zinc 0.576% and its root has 0.45% of manganese and 0.431% Potassium.

The cultivated members of family Cucurbitaceae are economically important and used as vegetables; some members are used in medicine and are rich in mineral content which improves nutrition value. The present study of mineral detection came in to conclusion that the fruits of selected wild plants have maximum amount 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 Diplocyclus 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.

It is reported that the K is diuretic involves in ionic imbalance of human body; Zinc is an essential component of enzyme for normal growth and reproduction, wound healing property. Phosphorus helps in ATP synthesis. Iron helps in transport of oxygen to tissue and in oxidative process. All these minerals are present in large amount in fruit and leaf of studied plants. The plants of this study nutritionally and neutraceutil very important for the healthy growth of human beings

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 but in addition to this they are the cheap source of getting large amount of minerals.
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The medicinal property of a plant is depending on the presence of a particular phytochemical, in present study seven phytochemicals of leaf, fruit, stem and root are screened by different tests for the conformation of the compound and its precipitation/concentration also observed.

**Phytochemical analysis of Fruit**

The rustic people of Parbhani district mostly use the fruits and leaves to cure different diseases. The alkaloids are secondary metabolites, they are detected in all solvent fruit extracts but it is absent in petroleum ether extract of *Coccinia grandis*, *Lagenaria siceraria*, *Trichosanthes tricuspidata* *Diplocyclos palmatus* and *Cucumis setosus*.

Flavonoids are noticed all extracts but absent in petroleum ether extract of *Lagenaria siceraria*, *Diplocyclos palmatus* and *Cucumis setosus*. While it is detected in all studied extracts of *Coccinia grandis* and *Trichosanthes tricuspidata*.

Triterpenoids are analgesic, used in to cure nervous disorders, cardiovascular diseases and digestive system diseases. The triterpenoids observed in all studied extracts of *Lagenaria siceraria* *Diplocyclos palmatus* and *Cucumis setosus*. Whereas, it is noticed in all extracts but not detected in petroleum ether extract of *Coccinia grandis*, *Trichosanthes tricuspidata*. The cardiac glycosides are present in all extracts of studied plants.

The steroids are detected in all extract but not found in distilled water extracts of *Lagenaria siceraria*, *Trichosanthes tricuspidata* and *Cucumis setosus*. It is absent in distilled water and acetone extracts of *Coccinia grandis*. It is not detected in distilled water and petroleum ether extract of *Diplocyclos palmatus*.

The saponins are detected in all solvent fruit extracts of *Lagenaria siceraria* and *Trichosanthes tricuspidata*. But it is absent in petroleum ether extract of *Coccinia grandis*, *Diplocyclos palmatus* and *Cucumis setosus*.

The tannin is detected in all solvent leaf extracts of *Coccinia grandis*. It is detected in all extract of *Trichosanthes tricuspidata* but it is absent in acetone extract.
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*Lagenaria siceraria* it is not found petroleum ether and acetone extract. In *Diplocyclos palmatus* it is observed distilled water and ethanol extracts. But in *Cucumis setosus* it is observed only in distilled water extract.

**Phytochemical analysis of leaf of studied plants**

The alkaloids are detected in all solvent leaf extracts but it is absent in petroleum ether extract of *Coccinia grandis, Lagenaria siceraria, Trichosanthes tricuspidata, Diplocyclos palmatus* and *Cucumis setosus*. The alkaloids are secondary metabolites widely used in medicine. The alkaloids detected from above plants may enhance the medicinal potential of a plant.

Flavonoids are absent in petroleum ether and acetone leaf extract of *Coccinia grandis*. But it is detected in all extracts of *Lagenaria siceraria, Trichosanthes tricuspidata, Diplocyclos palmatus* and *Cucumis setosus* and absent in petroleum ether extract of these plants.

The triterpenoids observed in all extracts of *Coccinia grandis, Trichosanthes tricuspidata* and *Cucumis setosus*. Whereas, it is detected in all extracts but not found in petroleum ether extract of *Lagenaria siceraria* and *Diplocyclos palmatus*.

The cardiac glycosides are present in all extracts of studied plants. The steroids are detected in all extract but not found in distilled water extracts of studied plants.

The saponins are detected in all solvent leaf extracts but it is absent in petroleum ether extract of *Trichosanthes tricuspidata, Diplocyclos palmatus* and *Cucumis setosus*. It is noticed in all studied extracts of *Coccinia grandis, Lagenaria siceraria*.

The tannin is detected in all solvent leaf extracts of *Lagenaria siceraria, Trichosanthes tricuspidata* but in *Coccinia grandis*, it is absent in petroleum ether and acetone extract. Whereas, it is absent in petroleum ether and methanol leaf extract of *Diplocyclos palmatus* and *Cucumis setosus*.
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Phytochemical analysis of stem

The alkaloids are detected in all solvent stem extracts but it is absent in petroleum ether extract of *Coccinia grandis*, *Lagenaria siceraria*, *Trichosanthes tricuspidata*, *Diplocyclos palmatus* and *Cucumis setosus*.

The flavonoids are detected in all solvent stem extracts of *Trichosanthes tricuspidata* but it is not observed in petroleum ether extract of *Coccinia grandis*, *Lagenaria siceraria*, *Diplocyclos palmatus* and *Cucumis setosus*.

The triterpenoids observed in all extracts of *Cucumis setosus*. Whereas, it is detected in all extracts but not found in petroleum ether extract of *Coccinia grandis*, *Lagenaria siceraria*, *Trichosanthes tricuspidata* and *Diplocyclos palmatus*.

The cardiac glycosides are present in all extracts of studied plants. But it is not observed in acetone extract of *Cucumis setosus*.

The steroids are detected in all extract but not found in distilled water extracts of *Coccinia grandis*, *Lagenaria siceraria* and *Trichosanthes tricuspidata*. It is absent in distilled water and acetone extracts of *Cucumis setosus*. It is not detected in distilled water and petroleum ether extract of *Diplocyclos palmatus*.

The saponins are detected in all solvent stem extracts *Coccinia grandis* *Lagenaria siceraria* but it is absent in petroleum ether extract of *Trichosanthes tricuspidata*, *Diplocyclos palmatus* and *Cucumis setosus*.

The tannin is detected in all solvent stem extracts of, *Trichosanthes tricuspidata* but in *Coccinia grandis* it is absent in petroleum ether extract. In *Lagenaria siceraria* *Cucumis setosus* it is absent in petroleum ether and acetone extract. It is detected in petroleum ether and acetone and ethanol extract *Diplocyclos palmatus*.

Phytochemical analysis of root

The alkaloids are detected in all solvent root extracts but it is absent in petroleum ether extract of *Coccinia grandis*, *Lagenaria siceraria*, *Trichosanthes tricuspidata*, *Diplocyclos palmatus* and *Cucumis setosus*.  

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The flavonoids are detected in all solvent root extracts but it is absent in petroleum ether extract of Coccinia grandis, Lagenaria siceraria and Cucumis setosus. The flavonoids are not observed in petroleum ether and acetone extracts of Trichosanthes tricuspidata Diplocyclos palmatus.

The triterpenoids are observed in all extracts of Lagenaria siceraria, Diplocyclos palmatus and Cucumis setosus, whereas, it is not found in petroleum ether extract of Coccinia grandis and Trichosanthes tricuspidata.

The cardiac glycosides are present in all extracts of studied plants.

The steroids are detected in all extract but not found in distilled water extracts of Coccinia grandis and Diplocyclos palmatus. It is not detected in distilled water and petroleum ether extract of Lagenaria siceraria, Trichosanthes tricuspidata and Cucumis setosus.

The saponins are detected in all solvent root extracts of Coccinia grandis, Lagenaria siceraria. Whereas the saponins are present in all extracts but it is not detected in petroleum ether extract of Trichosanthes tricuspidata Diplocyclos palmatus and Cucumis setosus.

The tannin is detected in all solvent root extracts of Coccinia grandis. But in Lagenaria siceraria it is present in all extracts and not observed in petroleum ether extract. Whereas, it is present in all extracts and not observed in petroleum ether and acetone extract of Trichosanthes tricuspidata Diplocyclos palmatus. It is detected only in distilled water root extract of Cucumis setosus.

Medicinally alkaloids 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 diseases.

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

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 be the cheapest source to develop cardio protective medicine by further pharmacological studies in future.

The saponins are abroticient and antimicrobial in nature, the saponins are detected in all studied plants in different extracts. The formulation of studied plants may helpful in the development of drugs against diseases caused by microorganisms. The tannin possesses anti tumor and antimicrobial properties, from these studied plants low cost diseases curative drugs may be developed for human healthcare.

The above plants are wild in habitat and having maximum precipitation of triterpenoids, these plants may be the source for development generic medicine against above disorders. Further quantitative phytochemical analysis is required for the standardization and confirmation of activities of these phytochemical compounds.

**Thin Layer Chromatography**

The phytochemical screening of selected plants reveals the presence of all studied compounds in methanolic extract and the rustics were using leaf and fruits in the ethnomedicinal formulation therefore, the methanolic extracts of leaf and fruits of selected plants were used for Thin Layer Chromatography for the detection of a particular compound.

The TLC of present study noticed that the Rf values of leaf are 0.46 and 0.46 in *Lagenaria siceraria* and *Cucumis setosus* respectively. Whereas, in fruit extract the Rf values are 0.47 and 0.48 in *Trichosanthes tricuspidata* and *Cucumis setosus* respectively. The Rf values compared with standard Rf values and concludes that the presence of rutin in leaf and fruit of studied plants.

The leaf extract shows 0.88 and 0.87 are the Rf values in *Trichosanthes tricuspidata* and *Diplocyclos palmatus* respectively. While the fruit extract exhibit 0.89
Rf value in *Lagenaria siceraria*. The Rf values are correlating with standard Rf values of quercetin. The TLC observation reveals presence of rutin and quercetin in leaf and fruit extract.

**High Performance Liquid Chromatography**

The methanolic leaf and fruit extracts of selected plants are used for HPLC analysis for the quantification of flavonoids which are detected in TLC process.

The HPLC chromatographic pattern corresponding to the methanol extract of selected plants were monitored at 298 nm is shown in Spectral Graph Nos 4-23. In the present study, characterization of chemical compounds was performed based on UV/visible spectrometry, as well as by the comparison of retention times with those of semi synthesized reference compound Rutin and Quercetin. The retention time of standard rutin and quercetin is 2.593 and 5.643 respectively. The compound was confirmed by HPLC with UV spectrometry provided peak information and retention time in minute.

In present study it is observed that maximum percentage of rutin is detected in *Diplocyclos palmatus* fruit and *Cucumis setosus* i.e. about 0.0805% and 0.0206% respectively. The notable percentage of rutin also detected in *Coccinia grandis* leaf and fruit i.e. 0.0164% and 0.0121% respectively. *Trichosanthes tricuspidata* leaf and *Cucumis setosus* fruit has rutin content 0.0090% and 0.0078% respectively. The rutin also detected in *Diplocyclos palmatus* leaf, *Lagenaria siceraria* fruit, *L. siceraria* leaf and *Trichosanthes tricuspidata* fruit i.e. 0.0055%, 0.0052%, 0.0043% and 0.0030% respectively.

The *Coccinia grandis* fruit has maximum percentage of quercetin i.e. 0.0125% and minimum percentage of quercetin 0.0024% is detected in *Diplocyclos palmatus*. The flavonoids quercetin is not found in leaf and fruits of *Lagenaria siceraria*, *Trichosanthes tricuspidata* and *Cucumis setosus*.

In present study during TLC and HPLC analysis the flavonoids rutin and quercetin are detected. 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. The present observation reveals that quercetin is detected in fruit and leaf of studied plants. The quercetin is noticed only in *Coccinia grandis* and *Diplocyclos palmatus* fruit. Taking into notice the availability and occurrence of these studied plants they may provide low cost medicine for human healthcare.

In the present study for the confirmation of efficacy of selected plants the antimicrobial assay is conducted. The test organisms are obtained from School of Life Sciences Swami Ramanand Teerth, Marathwada University, Nanded.

The activity is measured in terms of growth sensitivity zone of a plant extract. The *E. coli* is sensitive to alcoholic leaf extract of *Coccinia grandis* (23mm), it is also sensitive to distilled water and methanol leaf extract of *Lagenaria siceraria* (16mm). The alcoholic leaf extract of *Trichosanthes tricuspidata* is inhibitory to *E. coli* (20mm), the petroleum ether leaf extract of *Diplocyclos palmatus* is sensitive to *E. coli* (14mm) and distilled water leaf extract is active against *E. coli* (18mm).

The *Staphylococcus aureus* develop sensitivity to alcoholic leaf extract of *Coccinia grandis* (20mm), *Lagenaria siceraria* (17mm) and *Diplocyclos palmatus* (14mm), petroleum ether leaf extract of *Trichosanthes tricuspidata* (15mm). The acetone leaf extract of *Cucumis setosus* is sensitive to *S. aureus* (17mm).

*Salmonella typhi* is sensitive to alcohol and distilled water leaf extract of *Coccinia grandis* showing growth of inhibition zone 9mm. The petroleum ether leaf extract of *Lagenaria siceraria* is inhibitory to *S. typhi* and it is also sensitive to alcoholic leaf extract of *Trichosanthes tricuspidata* (26mm). The acetone leaf extract is inhibitory to *S. typhi* (17mm). The alcoholic and methanol leaf extract of *Cucumis setosus* is active against *S. typhi* 16mm.

The acetone leaf extract of *Coccinia grandis* and *Lagenaria siceraria* shows inhibitory activity against *Shigella shigella* with growth of inhibition zones 112mm and 13mm respectively. The distilled water leaf extract of *Trichosanthes tricuspidata* shows sensitive activity against *S. shigella* (18mm), petroleum ether leaf extract of *Diplocyclos palmatus* (16mm) and distilled water and acetone leaf extract of *Cucumis setosus* (15mm).
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The alcoholic leaf extract of *Coccinia grandis* and *Trichosanthes tricuspidata* develop active inhibitory zones against *Candida albicans* i.e. 24mm and 19mm respectively. The methanol leaf extract of *Lagenaria siceraria* and *Cucumis setosus* is sensitive to *Candida albicans* with inhibition zones 13mm and 19mm respectively. The *Candida albicans* is also sensitive to alcoholic and petroleum ether leaf extract. The zones of inhibition are same i.e. 16mm.

The alcoholic fruit extract of *Coccinia grandis* is inhibitory to *E. coli* (16mm). The distilled water fruit extract of *Lagenaria siceraria* is active against *E. coli* (16mm). The acetone fruit extract of *Trichosanthes tricuspidata* and *Diplocyclos palmatus* shows sensitive activity against *E. coli*. The inhibition zones are 21mm and 18 mm respectively. The petroleum ether fruit extract of *Cucumis setosus* shows antimicrobial activity against *E. coli* the zone of inhibition is 17mm.

*Staphylococcus aureus* is sensitive to methanol fruit extract of *Lagenaria siceraria*, *Trichosanthes tricuspidata* and *Cucumis setosus*. The inhibitory zones are 13mm, 18mm and 20mm respectively. The *S. aureus* is also sensitive to acetone fruit extract of *Coccinia grandis* (15mm) and *Diplocyclos palmatus* (26mm).

*Salmonella typhi* develop sensitive zone of inhibition to distilled water fruit extract of *Coccinia grandis* (12mm), *Lagenaria siceraria* (16mm) and *Diplocyclos palmatus* (18mm). The acetone fruit extract of *Trichosanthes tricuspidata* shows inhibitory activity against *S. typhi* (24mm). The alcoholic fruit extract of *Cucumis setosus* is also inhibitory to *S. typhi* (21mm).

The *Shigella shigella* is sensitive to alcoholic fruit extract of *Lagenaria siceraria* and *Trichosanthes tricuspidata* with inhibitory zones 12mm and 18mm respectively. The distilled water fruit extract of *Coccinia grandis* (15mm) and *Diplocyclos palmatus* (16mm) is inhibitory to *S. shigella*. The alcohol and petroleum ether fruit extract of *Cucumis setosus* develops inhibitory activity against *S. shigella* (19mm).

The *Candida albicans* is sensitive to acetone fruit extract of *Coccinia grandis* (13mm) and *Trichosanthes tricuspidata* (18mm). The methanol fruit extract of *Lagenaria*
siceraria (14mm), petroleum ether fruit extract Cucumis setosus (22mm) and alcoholic fruit extract of Diplocyclos palmatus shows inhibitory activity against Candida albicans (15mm).

In present study the antimicrobial assay of leaf and fruit extract of selected plants exhibited at 100mg/ml concentration of leaf and fruit extracts. The various solvent leaf and fruit extracts of C. grandis displayed remarkable inhibitory activity against E. coli, S. aureus, C. albicans and S. shigella.

The antimicrobial assay leaf extracts of L. siceraria exhibits maximum inhibitory efficacy against E. coli, S. aureus, S. shigella and S. typhi and the fruit extract develop sensitivity to S. typhi, C. albicans, E. coli and S. typhi

The various solvent leaf extracts of T. tricuspidata is exhibit maximum inhibitory activity against S. typhi and E. coli. S. shigella C. albicans but fruit extract exhibit maximum inhibitory activity against S. shigella, S. typhi E. coli and S. aureus

The leaf extracts of D. palmatus exhibit maximum inhibitory activity against C. albicans, S. aureus, S. shigella, E. coli and S. typhi and fruit extracts is inhibitory activity to S. shigella, C. albicans, S. typhi and S. aureus.

The alcoholic leaf extracts of C. setosus is exhibit maximum inhibitory activity against S. typhi, C. albicans, E. coli and S. aureus and fruit extracts are inhibitory against S. shigella and C. albicans S. typhi and S. aureus

In present study for antimicrobial assay the E. coli, S. aureus, S. typhi, S. shigella and C. albicans are used as test organisms, they are pathogenic. The 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. 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 develops sensitivity to S. aureus. 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 suggests that the studied plants should be the sources to develop medicine against above cited diseases.

**Powder Microscopy**

Quantitative analysis of powder of a crude drug becomes an important analytical tool for the detection of adulteration and improvement of quality of the drug when other methods of evaluation fail to standardize the quality. Therefore, powder microscopy is performed during this microscopical analysis the epidermal parts such as broken epidermal cells, trichome, vessels, stomata, oil globules. Parenchymatous tissue etc.were observed.

**Antioxidant Activity**

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 DPPH free radical scavenging activity of standard reference ascorbic acid was 51.33 ± 1.02. In present study it is observed that the fruits above plants have DPPH free radical scavenging activity more than that of reference standard ascorbic acid.

The leaves of studied plants does not bear DPPH free radical scavenging activity except *Trichosanthes tricuspidata* its DPPH free radical scavenging activity 54.00 ± 1.47 which also more than that of standard ascorbic acid.

Many phytomedicines require further investigation for their clinical effectiveness, while others need to be thoroughly investigated for their potential health risks or interactions with prescription drugs. Renascence of subject pharmacognosy will be complex procedure requiring multiple strategies to boost natural product research.

However, even if plenty has been published already, there is still much more to be done so that the folkloric knowledge can be really used to determine or to find novel agents. The pharmacological, phytochemical and antimicrobial studies should be taken up in medicine to open up new frontiers in the phytomedicine.