SUMMARY AND CONCLUSION

India is one of the twelve mega biodiversity countries endowed with rich biodiversity. Most of them are used in Traditional Medicinal Systems like Ayurveda, Siddha and Unani. The importance of traditional medicinal plants is increasing now a days because of various advantages over the synthetic drugs. New drug discoveries have shifted attention from synthetic models and compounds to natural products of plants origin. This is because scientists now believe that drug leads\hit molecule discovery would be more probable in plant and other natural sources like marine and animals which are yet to be fully explored. So the study of medicinal properties of unexplored medicinal plants like leaves of *Embelia ribes* and roots of *Chonemorpha fragrans* is need of the hour. Standardization is an important tool for herbal drugs in order to establish their identity, purity, safety and quality. In order to standardize a drug, various macroscopic, physicochemical analyses, phytochemical analysis, fluorescence analysis are done. The quantitative determination of some pharmacognostical parameters is useful for setting standards for crude drugs.

In the present investigation phytochemical, pharmacognostical and antimicrobial activity of leaves of *Embelia ribes* and root of *Chonemorpha fragrans* are carried out. The selected plants are ethno medicinally important plants used by the various people of Kerala. *Embelia ribes* are useful in leprosy, nervous debility, dyspepsia, flatulence, colic, tumors, asthma, fever, ascaris infestation, general debility and skin diseases. The root decoction is taken for treating insanity and heart diseases. *Chonemorpha fragrans* is an endangered medicinal plant. It is used in different preparations, such as sudarsanasavam and Kumarasvamin Ayurvedic System. The plant has a variety of pharmacological activities such as antiamoebic, antipyretic, antidiabetic, antiparasitic, anthelmentic, anticancer, celiac disease, skeletal muscle relaxant and gynecological disorder.
Pharmacognostical characters like anatomical characters, florescence analysis and ash values are studied using standard protocols. The results represent that the plant shows a remarkable results in this studies. It is an important parameter in detecting adulteration or improper handling of drugs from adulterant and helpful to prepare the monograph of the plants.

The qualitative and quantitative estimation of Phytochemicals of powder and various solvent extracts of Petroleum ether, benzene, chloroform, ethanol and aqueous extracts of selected plant powder shows the presence of various secondary metabolites. *Embelia ribes* and *chonemerpha fragrans* with different extracts showed the presence of sugars, alkaloids, phenols, flavanoids, tannins, steroids, cardiac glycosides, phlobatannins, saponins, quinones but glycosides and amino acids are not detected.

According to regulatory guidelines and pharmacopoeias, along with the macroscopic and microscopic evaluation of the medicinal plants, chemical profiling of the botanical materials also necessary for the quality control and standardization. Thin layer chromatography, High Performance Chromatography and Gas chromatography and mass spectroscopic studies are also valuable tools for qualitative determination of small amounts of impurities. Thin layer chromatography studies were carried out with different extracts in various solvent systems. Retention factor value shows presence of numerous compounds in different extracts. The related appearances of different colours in normal light, ultra violet and Iodine by extracts revealed the compounds present in it. FT-IR spectrum of *Embelia ribes* and *Chonemorpha fragrans* showed the presence of ten functional groups. HPLC profiles of *Embelia ribes* displayed one prominent peak and followed by one moderate peak. *Chonemorpha fragrans* profile displayed only one prominent peak and followed by three moderate peaks. GC-MS analysis of the ethanolic extracts of *Embelia ribes* and *Chonemorpha fragrans* lead to the identification of four compounds. They were
cyclopropane, 1, 1- dimethyl, Toluene, 1,3,6 – Octatriene 3,7- dimethyl – (z) and 3.3 – Dimethyl – 1,2 – epoxybutane. Presence of these compounds ensure the performance of *Embelia ribes* and *Chonemorpha fragrans* in pharmacognostic and antimicrobial activities.

The antimicrobial activities of the plant extracts are observed by using well diffusion method. This study has confirmed the antimicrobial potential of *Embelia ribes* and *Chonemorpha fragrans* and thus supporting its promising possibility of finding new clinically effective natural source of bioactive compounds. The petroleum ether extract of *Embelia ribes* and ethanol extract of *Chonemorpha fragrans* are found to be more effective than other extracts. This may be due to the presence of more phytochemicals in petroleum ether and ethanol extracts than the other one, the difference might to be due to the difference in solubility and polarity of the solvents.

The methanolic extract of *Embelia ribes* showed cytotoxic effect against U-87, Hep G2 and MCF7 cell lines. Among the three cell lines U87 have the highly potent activity followed by MCF7 and Hep G2. Based on the results obtained *Embelia ribes* is found to be an effective antimicrobial and anticancerous agent which can be used in various products. The effect of this plant on more pathogenic organisms and toxicological investigations and further purification however, needs to be carried out.

The methanolic extracts of *Chonemorpha fragrans* extract offers a remarkable anticancerous property. This might be due to the presence of camptothecin which is a plant derived monoterpene alkaloid which is currently used in several medicines for the treatment of cancer. Even though chemical synthesis of camptothecin is possible, the extraction of the compound from plant sources will be a cost effective method. This fact makes the plants more valuable as a source of camptothecin as there are limited sources available for camptothecin extraction.
The above results clearly indicate that the two medicinal plants, *Embelia ribes* and *Chonemorpha fragrans* possess very unique, macroscopic, microscopic, phytochemical, antimicrobial and anticancerous properties. These findings will be useful for establishing pharmacognostic standards on identification, quality, purity and classification of the plant in drug research. It may also help in the discovery of new chemical classes of antibiotic and anticancerous drugs. Further studies on *Embelia ribes* and *Chonemorpha fragrans* are warranted in order to isolate, identify, characterize and elucidate the structure of the bioactive compounds.