INTRODUCTION
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The extent of energy availability from various sources determines the diversity of human activity. With the depletion of conventional sources of energy day by day, owing to the increased consumption which can no longer be relied as stable economic raw material to meet the global fuel energy demand and industrial feedstock's and assuming the fossil fuel will continue to be available for another few decades, they will be more expensive and increasingly difficult to exploit (Marimuthu et al., 1989). Self-reliance in energy supply is a vital factor in the development of a nation. Hence there is an urgent need to search for an alternate source that can supply the fuels and chemicals without affecting their sustainability.

Direct utilization of solar energy is suggested as an immediate and more viable alternate to conventional sources of energy (Calvin, 1974, 1977; Wang and Huffman, 1981). Till date we are unsuccessful in developing cost-effective technology to convert solar energy into stable chemical energy and store them for future use. In this context the green plants are very unique since they posses the required mechanism to convert and store the solar energy (Calvin, 1977). Despite of tremendous scientific and technological advancement, it is not feasible to mimic the mechanism vested with green plants. However the green plants are exploited to the extent of affecting their continuous
sustainability and the necessity to utilize the plant products without affecting them is realised.

With the help of available built-in mechanism the green plants trap the solar energy and elaborate into a myriad of chemical products. Their ability to produce a wide spectrum of chemicals depends not only on their genetic constitution, but also on the environmental conditions in which they are surrounded (Calvin, 1979b). The chemical constituents, their quality and quantity of a particular plant species vary from habitat to habitat and also at different stages of development. This aspect highlights the need to undertake phytochemical screening to assess the phytochemical potentials of plant species from a particular region with a specific set of environmental conditions and to identify energy rich plant species. The energy rich plant products that can be used either as substitutes or supplements or compliments of petrochemicals now are generally called “botanochemicals” (Buchanan et al. 1978a,b). These products can be extracted from plants either as primary or secondary botanochemicals. The plant biomass is a principal renewable source of energy capable of providing ecofriendly fuels. Attempts are on the way to evolve environmental adaptive biological systems in achieving greater biomass, which can be used for the extraction of fuel, food and other products (Bagby et al. 1979; Brown, 1975; Chem. Engg. News, 1976).

For long lasting and continuous supply of energy plant hydrocarbons are suggested and in this connection many plant species with enough chemical
potentials are suggested. Among them laticiferous plant species are of particular interest because they can be easily grown on a large scale even under biotic and abiotic stress conditions (Erdmann and Erdman. 1981). Plant latex is milky or less frequently pale, cloudy yellow or red fluid secreted and stored in specialized cells or tube-like structures known as laticiferous ducts or tubes occurring in many species of plants belonging to diverse families. This liquid may be present in any one or all parts of the plant and is considered by some as merely by-product of chemical processes metabolized during photosynthetic conversion of sunlight to energy and organic molecules (Esau, 1972; Metcalfe, 1967).

Among 2.5 x 10^5 to 3x10^5 angiosperm species, just 1% is utilized for the extraction of energy rich botanochemicals. The plant species growing in Maruthamalai hills (11° 04’ N and 76° 93’ E) a tail of Western Ghats, Southern India are not explored for their botanocontents. The paucity of information on the phytochemical potentials in them has prompted this present investigation.

For the current study randomly chosen forty plant species belonging to Acanthaceae, Amaranthaceae, Apocynaceae, Asclepiadaceae, Caesalpiniaceae, Convolvulaceae, Euphorbiaceae, Fabaceae, Meliaceae, Rubiaceae, Sapindaceae, Turneraceae and Verbenaceae were selected, out of which 15 species were laticifers and rest were non-laticifers.

Members of Apocynaceae, Asclepiadaceae, Euphorbiaceae and Convolvulaceae were producing abundant latex containing rubber, resinous
compounds and hydrocarbons that were similar in composition with petroleum products. They occurred in crude forms in leaves, trunks, bark, seeds and cell sap of plants. Due to the presence of high resinous content, the latex of most of the species was not exploited as a source of rubber, hydrocarbon etc. Hence an investigation was aimed with the following objectives.

AIM OF THE STUDY

1. To assess the rubber, energy, hydrocarbon, oil polyphenol and other phytochemical contents among the selected 15 laticiferous and 25 non-laticiferous plant species.

2. To assess the gross heat value of laticiferous plant species.

3. To record the Infrared and Nuclear Magnetic Resonance spectra of hydrocarbon samples of plant species to find out the nature of the compounds present in them.

4. To screen 21 non-laticiferous plant species for the presence of alkaloid, flavonoid, terpenoid and steroid, rotenoid, saponin, tannin and phenolic compounds.

5. To elucidate the chemical structure of the compounds through chromatographic techniques.

6. To evaluate the occurrence and the extent of latex containing cells in various plants hand sections of laticiferous plants were examined microscopically.