ABSTRACT

An intensive ethno-botanical survey was performed in and around villages of Anantapur district of Andhrapradesh. Mainly emphasized on ethnic use of medicinal plants and specifically focused on antimicrobial, antidiabetic, anti-obesity and anthelmintic activity. Three plants were selected for the present investigations were *Stylosanthes fruticosa*, *Indigofera linnae* and *Cinnamomum tamala* those were used by the traditional practitioners of south India.

The selected whole plants were subjected for extraction by cold maceration and hot continuous sohxalate extraction by using aqueous, hydro-alcoholic and alcoholic solvents respectively. The extracts were concentrated by using Rotavapor. All the crude extracts obtained from cold maceration and hot continuous sohxalation were used for the pharmacognostical and biological investigation such as phytochemical, proximate, macroscopical and microscopical examination of fresh, dried crude powder, antimicrobial analysis, antioxidant activity, in-vitro and in-vivo pharmacological studies on antidiabetic and anthelmintic activity were performed.

From the above mentioned studies, most bio active extracts were selected and used for bioactive guided isolation for identifying the phytocnsituents responsible for the activities. The isolated compounds purity and phytochemical characterization was performed using spectral and chromatographic techniques.
Phytochemical studies proved that the aqueous, hydro-alcoholic, alcoholic and hot continuous (soxhlation) extracts of all the three plants were contain carbohydrates, glycosides, phenolic compounds, phytosterols and flavonoidal substances. Phytosterols found minimal amount in all the selected plants. Alkaloids identified as a main source in *Cinnamomum tamala* and *Stylosanthes fruticosa*. Saponin found only in *Stylosanthes fruticosa*. The aqueous, Hydro-alcoholic, alcoholic and hot continuous soxhulate extracts of all the three plants showed flavonoid content.

Antioxidant activities were performed for various crude extracts obtained from cold maceration and hot continuous soxhlation were subjected for scavenging assay on hydrogen peroxide radicals; reducing power assay and total antioxidant activity were performed by using standard procedures. The alcoholic and hydro-alcoholic extracts of *Cinnamomum tamala* showed total antioxidant activity; and alcoholic, hydro-alcoholic and aqueous extracts of *Indigofera linnae* showed a potent antioxidant activity in scavenging of hydrogen peroxide assay method. *Stylosanthes fruticosa* showed less antioxidant activity when compared with other extracts and standard. Soxhalated extracts of all the three plants showed moderate activity in reducing power method when compared with the respective reference standard.

The results obtained for the antibacterial activity carried out for the aqueous, alcoholic, hydro alcoholic and alcoholic hot continuous sohxaleet extracts of whole plants of *Stylosanthes fruticosa, Indigofera linnae* and barks of *Cinnamomum tamala* were studied for
antibacterial activity against five standard microorganisms (Staphylococcus aureus, Proteus vulgaris, Bacillus subtilis, Pseudomonas auriginosa, Escherichia coli). All the extracts of the selected folklore medicinal plants and its zone of inhibition of Indigofera linnae and Cinnamomum tamala showed very potent activity than Stylosanthes fruiticosa extracts. All these differences in the antibacterial study of the extracts might be due to the chemical composition of the selected plants, the species of the microorganism’s utilized and suitable method of extractions.

Pharmacological activities like α-amylase and α-glucosidase inhibition assays (In-vitro) were performed all the extracts of selected plants. From the results acquired we observed better activities were revealed from alcoholic and aqueous extract of bark of Cinnamomum tamala percentage inhibition were reported as 97.49% and 93.78% respectively when compared to whole plants of Stylosanthes fruiticosa aqueous and alcoholic extracts were observed (83.76% and 58.34%) respectively. The aqueous and alcoholic extracts of Indigofera linnae were shown (62.62% and 83.76%) respectively.

The alcoholic crude extracts of Cinnamomum tamala obtained from soxhalation showed potent activity on all the biological screenings performed for in-vivo and in-vitro methods. Hence the crude extract of Cinnamomum tamala was taken for bioactivity guided isolation of pure moieties. Thus the fraction obtained from the alcoholic crude extracts purity was confirmed by chromatographic (TLC and HPLC) and spectral (IR, ¹H NMR, and ¹³C NMR) studies.
The ethyl acetate chromatographed fractions from methanolic partition obtained from alcoholic extracts of *Cinnamomum tamala*, the different percentage of ethyl acetate in pet ether were used for the compounds isolation and confirmed as pure compound and obtained 35mg of PC/CC/KF3. These isolated compound were studied for alpha amylase inhibition assay for antidiabetic activity by comparing with the standard. The other compounds isolated from the same parent extract acquired cinnamic acid, caffeine, epicatechin, proカテchueic acid and pure compounds PC/CC/KF3 & PC/CC/KBF.

Anthelmintic activity assay were screened using *Pheretima posthuma* with the concentration ranging from 100µg/ml, 200µg/ml and 500µg/ml for the SFAQ, SFAL, SFHA and SFSM; ILAQ, ILAL, ILHA and ILSM; CTAQ, CTAL, CTHA, CTSM extracts and albendazole. From the observation SFAQ showed (44.5±0.42 and 95.5±0.42); SFSM (28.8±0.47 and 89.1±0.47); CTSM showed (28.8±0.47 and 90.0±0.47) paralytic time and death time respectively.

Hence these studies can be concluded that the selected medicinal plants were claiming the ethnic uses of traditional healers and the scientific data acquired from the current investigational assessment states that these plants possess potent antidiabetic, antimicrobial, antioxidant and anthelmintic activity.