



SUMMARY



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The present research work was carried out to document the existing medicinal plants and to enumerate the medicinal uses of the plants of Kukna tribes inhabiting in Waghai forest of Gujarat and Soliga tribes living in Talamalai forest of Tamil Nadu.

It was observed that Kuknas use around 45 species, belonging to 45 genera of 26 families in Waghai forest. The most dominant family in this study area was Poaceae (11.12% of the total and 5 species). Leaf is the mostly used plant part (29 %) to treat a particular disease. Kuknas of Waghai forest followed 16 different kinds of medicinal preparations. It was also noted that the Kuknas living in Waghai forest of Gujarat used the medicinal preparation mostly in the form of extract (17%) and the oral intake of medicinal preparations is higher percentage (50%). Kuknas used the herbal preparations mostly for the treatment of gastrointestinal disorders (7 species). Based on the information obtained from the Kuknas, all the reported ailments were grouped into 13 categories. Gastrointestinal ailment has the highest ICF value of 0.84. Dental care and Urinary system disorders were found with ICF value zero.

Soliga tribes of Talamalai forest use 49 species, belonging to 46 genera of 26 families, based on the use of a single plant species, used to treat 34 different illnesses were recorded. The most dominant families found in this study area are Euphorbiaceae, Liliaceae and Rutaceae (8.16% of the total and 4 species each). Soligas also used leaf (54%) as major part to prepare the medicines. Soligas used the medicinal preparation mostly in the form of paste (24%). Oral administrations of medicinal remedies are found in highest percentage (51%). Soligas used the herbal preparations mostly for the treatment of common cold (9 species). Based on the information obtained from the Soligas, all the reported ailments were grouped into categories. The informant consensus factor (ICF) for Soligas of Talamalai forest ranges from 0 to 0.80. Gastrointestinal ailments have the highest ICF value 0.80. Ear, nose and throat problems and Respiratory system disorders were found with low ICF value zero.

The phytochemical study revealed that the root extract of *C. quadrangularis* extracted with ethanol, methanol, ethyl acetate, petroleum ether and chloroform showed the presence of steroids, triterpenoids, flavonoids, phenols and tannins. The GC-MS analysis led to the identification of 24 compounds from the gas chromatography fractions of the methanolic root extract of *C. quadrangularis*.

The highest extract yield percentage was found in methanol extract of root. Among the three different extracts analysed, the methanol extract of plant sample contained maximum amount of total phenolics (356.43 ± 18.03 mg GAE/g extract), tannin (151.67 ± 17.79 mg GAE/g extract) and flavonoid (493.00 ± 7.21 mg RE/g extract). The GC-MS study showed that the methanolic root extract of *C. quadrangularis* shows the presence of triterpenes glycosides. The antioxidant activity of *C. quadrangularis* root was also determined by the present study. Methanol extract had higher DPPH reduction capacity at 250 μ g/ml (15.78). ABTS⁺ scavenging activity of different solvent extracts tested, methanol extracts of plant sample showed a higher (1968.29 ± 7.01 μ M TEAC/g extract) free radical scavenging activity. Methanol extract of *C. quadrangularis* root registered a higher ion chelating ability (117.58 mg EDTA/g extract).

The present research work revealed the highest percentage of antidiabetic effect (45.27 ± 0.41) and was obtained by root extract at 500 μ g/ml concentration of methanolic root extract of *C. quadrangularis*. The anti-inflammatory activity was also determined in this present study by using protein denaturation inhibiting activity and proteinase inhibiting activity. In case of protein denaturation inhibiting activity, root extract of *C. quadrangularis* showed highest activity (23.81 ± 1.19) at the concentration level of 500 μ g and IC₅₀ values were noted as 285.84 ± 7.43 . 8.66 \pm 0.55% activity was observed at 100 μ g concentration of root extract by proteinase inhibiting activity assay and IC₅₀ values were noted as 215.65 ± 1.27 .

The antibacterial activity of the methanolic root extract of *C. quadrangularis* was also analysed. The higher activity (22.33 ± 0.58 mm of inhibition diameter) was shown by the root extract at the concentration of 2000 μ g/well against *Klebsiella pneumonia* (MTCC 432), *Escherichia coli* (MTCC 739) showed (21.00 ± 0.00 mm) highest activity at

the 2000 µg concentration level as same as *K. pneumonia*. Methanolic root extract of *C. quadrangularis* was screened for antifungal activity. The different concentrations of extract showed moderate activity against *Malassezia furfur* (MTCC 1374) while the extract did not show any activity against *Candida albicans* (MTCC 227). The results of anti-haemolytic activity showed that the highest percentage of anti-haemolytic effect (5.39 ± 0.33) was obtained by root extract, at 500 µg concentration.

The documentation work done among the Kuknas and Soligas showed that the ethnic knowledge has almost disappeared in Waghai forest and Talamalai forest area of Western Ghats. The tribes also use allopathic drugs for the therapy of various ailments. The renewal of plant based medicine is a recent trend for treating various diseases. Hence, ethnobotanists and researchers, by way of revival of this traditional knowledge of the tribals will be of great help to man suffering from incurable diseases today.

From the present study the phytochemical analysis and biological activities of root of *C. quadrangularis* have curative properties as discussed above.