SUMMARY

The present study is mainly focussed on the following four important aspects of ethnomedicinal plants, *Polygala javana, P. chinensis* and *P. rosmarinifolia*.

Pharmaco-chemical characterization of whole plant of *Polygala javana, P. chinensis* and *P. rosmarinifolia*.

- HPTLC profiles of ethanol extracts of *Polygala javana, P. chinensis* and *P. rosmarinifolia*.
- GC-MS analysis of ethanol extracts of above said plants.
- Pharmacological studies on the ethanol extracts of *Polygala javana, P. chinensis* and *P. rosmarinifolia* for anticancer, antidiabetic, hepatoprotective, antifertility and antiinflammatory activities through animal model.

The results of the qualitative phytochemical study exhibited the occurrence of alkaloid, anthraquinone, catechin, coumarin, flavonoid, phenol, saponin, tannin, terpenoid, sugar, and glycosides from the methanol and ethanol extracts of the above said plants. HPTLC profiles have also confirmed the presence of alkaloids, flavonoids, glycosides, saponins and steroids. From the GC-MS analysis of the ethanol extracts of *Polygala javana* leaf 16 compounds, *Polygala chinensis* 14 compounds and aerial part of *Polygala rosmarinifolia* 12 compounds were detected.

Ethanol extracts of whole plant of *Polygala javana, P. chinensis* and *P. rosmarinifolia* have reported to possess anticancer activity. Significant antidiabetic, hepatoprotective activity were observed after the treatment with ethanol extracts of whole plant of *Polygala javana, P. chinensis* and *P. rosmarinifolia*. Antifertility and antiinflammatory activities were also carried out.