2. AIM AND SCOPE OF THE PRESENT STUDIES

According to Gamble (1921), about 12 species of Didymocarpus Wallich ex Buch.- Ham. are distributed in the Western Ghats of Peninsular India, more specifically in the Tirunelveli hills. Gamble had employed habit profile for major categories of species of Didymocarpus Wallich ex Buch.- Ham. and foliar characters for further classification of the species. For Didymocarpus tomentosus Wight, Gamble provides the following diagnostic features:

- The plant is a scapigerous herb with basal rosette of leaves.
- The petiole is short with broad wings, decurrent leaf base.
- Inflorescence dichotomously branched corymb with bluish purple flowers.
- Capsule ~1” long, villous; seeds trigonous and minutely pitted.

It is proposed in the present investigation to study the anatomical data of Didymocarpus tomentosus Wight and to propose an anatomical protocol, so that one can diagnose the species either in fragmentary condition or in sterile (without flower/fruit) condition. The results of the studies are complementary to other areas of studies of the species. It is the first record of studies, contributing values to the anatomy of the taxon.

Didymocarpus humboldtianus Gard. and Didymocarpus gambleanus C. Fischer are the other two coexisting species distributed in the Western Ghats of Tirunelveli forest of Tamil Nadu, India. These species are also scapigerous herbs with rosette of basal leaves. The external profile of three species is closely similar to each other so that one may find it difficult to distinguish the three taxa from each other. So,
microscopic studies of the two Western Ghats species of *Didymocarpus* Wallich ex Buch.- Ham. have also been undertaken for comparative purpose.

Histochemical analysis of presence or absence and localisation of certain compounds in plant tissues is another aspect of pharmacognostic studies. This study has been gaining momentum in recent years for its application in getting a preliminary idea of the chemical background of a plant. So the present researcher has opted for histochemical parameters of all the three species mentioned above. Compounds like flavonoid, tannin, starch, mucilage, protein, lipids, phenols and lignin were subjected to staining with specific reagents.

The objective of the present study is to scientifically validate the folk medicinal application of three species, namely *Didymocarpus tomentosus* Wight, *Didymocarpus humboldtianus* Gard. and *Didymocarpus gambleanus* C. Fischer through Pharmacognostical, Biological and Phytochemical evaluation.

*Didymocarpus tomentosus* Wight was studied for its antioxidant activity, antimicrobial activity, anti inflammatory activity and antiurolithiasis followed by phytochemical screening. On the basis of preliminary phytochemical result the other two species were studied only for antimicrobial activity.