2. REASONS FOR UNDERTAKING THE PRESENT STUDY

The present study aims to analyze the systematics and landscape application of ornamental plants grown in Thiruvananthapuram district to bring together the two different branches of Botany, the taxonomy and horticulture. Even though there are reports on certain independent attempts in taxonomy and landscape applications of ornamental plants, combined work like the present one is almost unknown in India or elsewhere in the world. The general practice prevails all over the world while preparing a flora is to avoid the garden plants, in spite of the fact that they play an important role in modulating the landscape as well as the ecology of human inhabited places. The Flora indica exceptionally gives considerable importance to the garden plants including the exotic ones (Roxburgh, 1832). The notable works like Flora of British India (Hooker, 1872-1897), Flora of Presidency of Madras (Gamble, 1915-1936) and partly published volumes of Flora of India (Sharma, Balakrishnan & Hajra. 1993; Sharma & Balakrishnan. 1993; Sharma & Sanjappa. 1993; Hajra, Rao, Singh & Uniyal, 1995-1997; Hajra, Nair & Daniel, 1997.) which cover the present area of study, also mention certain cultivated ornamental plants including exotics. However the local floras that cover the area of present study like Flowering plants of Travancore (Rama Rao, 1914), Flora of Palode (Nayar et. al., 1986), Flora of Thiruvananthapuram (Mohanan, 1994) and Flora of Agasthyamala (Mohanan, 2002) also stress more on the indigenous flora and leaving the exotic ornamentals aside. Therefore to fill this lacuna, floras on cultivated plants started appearing world over. Liberty Hyde Bailey started the long standing research programme concerned with the systematics of cultivated plants with assistance by his daughter Ethel Zoe Bailey and others have resulted in a series of valuable publications on the ornamental plants systematics like the Cyclopedia of American Horticulture (1900-1902), the Standard Cyclopeda of Horticulture (1914-1917), Hortus (1930), Hortus Second (1941) etc. Finally, Bailey (1949) brought out a comprehensive monumental work such as the Manual of Cultivated Plants which is considered as most perfect scientific floristic studies on the systematics of cultivated plants. It deals with most commonly grown plants in continental United States and Canada with proper identification key and updated botanical nomenclature. Later the staff of ‘L. H. Bailey Hortorium’ published the revised, Hortus Third, a concise dictionary of plants cultivated in United States and Canada’ (Bailey et. al., 1976) with a total number of 34,305 taxonomic entries and describes 20397 species under 3301 genera falling in 231 families. The book deals in a dictionary like pattern from a botanic point of
view for the Horticultural community, is a perfect work regarding morphological key characteristics and updated nomenclature, but lacks a key for the identification of taxa. The series of pictorial books authored by Graf (1957-1982) are much reliable for the identification of garden plants. These books with photographs for every individual plant and their botanic names were prepared with the guidance from ‘L. H. Bailey Hortorium’ turns to be an easy identification source for garden plants. Subsequently, Graf (1978) published the ‘Exotic Plant Manual – fascinating plants to live with; their requirements, propagation and use’, which contains 3600 ornamental plant species / infraspecific taxa exotic to United States and mostly of tropics with photographs and brief descriptions on the key characteristics, garden applications, common name and nativity. In this book the plants are rather grouped in a horticultural point of view. Later on the more elaborated works such as, Tropica and Exotica were published by adding quality as well as number of plants by the same author (Graf, 1981). Starting from the first edition in 1957 with about 4000 photographs and illustrations, the latest edition of Exotica, illustrates around 16,600 plants from tropical and near tropical regions (Graf, 1982). Rao et. al. (2004) published 2 volumes of the ‘Flora, a gardeners encyclopedia’ is a very recent horticultural cum botanical work describing over 20,000 number of cultivated plants all over the world in horticulture, food crops, forestry and yielding drugs, fibers and dyes. In this book the plants are arranged in the alphabetic order of genus with updated botanic names, identification characteristics, the growth habit, ecological preferences, natural distribution etc.

Another category of works on the garden plants is focus on Horticultural point of view. These works are all stressing the horticultural potential and rather less reliable for the proper identification or nomenclature of the plants. The horticultural encyclopedias, like ‘The Marshall Cavendish Encyclopedia of Gardening’ (Paul, 1969) and ‘The New York Botanical Garden Illustrated Encyclopedia of Horticulture’ (Thomas, 1984) are dealt with horticultural plants in a wide sense including vegetables, medicinal plants and garden plants. In these works the dictionary pattern of genus entries with subentries of species or infraspecific taxa gives the garden and landscape uses, cultivation, pest and disease problems of garden plants. The book on ‘Shrubs in the Landscape’ (Hudak, 1984), evaluates the landscape applications of Ornamental shrubs grown in United States and lower parts of Canada. The Indian works like ‘Ornamental Horticulture in India’ refers to the ornamental potential and ecological, topographic and atmospheric conditions required for the important garden plants of India (Randhawa, 1973). The work on ‘Floriculture in India’ refers most of the horticultural plants and grouped according to their role in gardens with botanic names,
common names, nativity etc. is one of the best documentation of ornamental plants in India (Randhawa & Mukhopadhyay, 1986). The ‘Complete Gardening in India’ by Gopalswamiengar (1991) is also a horticultural oriented book with less importance on botanic names or identification of the plants. The lack of identification key and updated botanic nomenclature is the major limitations with the book. The more recently published book on ‘Landscape plants: Their Identification, Culture and Use’ (Bridwell, 2002) describes the landscape role of shrubs and trees and therefore it has been adopted as a model in treating the horticultural part of the present study.

There are certain minor projects regarding the taxonomy or horticultural aspects of the cultivated plants from different parts of India either on single a taxon like species, genus and family or on a small area. For instance the report on *Portulaca pilosa* L. sub sp. *pilosa* deals with the taxonomic characteristics and natural occurrence in Hamirpur district of Himachal Pradesh (Viswanathan & Sharma, 1983). Rawat & Srivastava (1986) in their ‘recently introduced exotics in the flora of Himachal Pradesh’ deals the nomenclature, family, distribution and nativity of 55 exotic ornamental plants. The brief account on ‘Beautiful grasses for your lawn’ by Abdul Khader et. al. (1986) refers important grasses used in Indian gardens. The paper on ‘*Turnera subulata* J. E. Smith (Turniraceae) – An Interesting Exotic Weed in Kerala’, describes the naturalization of the garden escapes in Kerala (Madhusoodhanan & Rejeni, 1989). Srivasthava (1989) brings out the identity of the exotic ornamental taxa of Malpighiaceae grown in Indian gardens which recognizes 14 species under 9 genera in India. This work includes artificial key, followed by correct nomenclature, morphological description, flowering and fruiting, nativity etc. The ‘Studies on Cultivated Lawn species in Pune Metropolitan area’ by Nagare et. al. (1990) refers the important grass species used in lawn construction with correct nomenclature, morphology and nativity. The paper on ‘Landscape designing — a place of paths, walkways, screens and trees’ (Sathish Mathur, 1992) discusses the effective deployment of Ornamental plants to achieve various landscape effects. The nomenclature and gardening potential of important *Bauhinia* Sp. in Indian gardens are discussed in ‘*Bauhinia* a genus of Ornamental and Economic value’ (Sachan et. al., 1992). Pramanik (1992) while evaluating the medicinal application of the milk weed *Asclepias curassavica* L. also discussed its exotic nature, ornamental potential and nomenclature. Another single plant reference is ‘On the Identity and History of *Phyllanthus myrtifolius* Moon (Euphorbiaceae) in Kerala’ by Ansari & Jeeja (1993) in which the authors discuss the identification features, nomenclature and the country of origin. ‘The Exotic Flora of Jabalpur District – M. P.’ by Shrivastava & Oommacham
(1994) is an enumeration of 157 exotic species cultivated or naturalized in the district with their correct nomenclature and nativity. The paper on ‘Barleria lupulina’ Lindl., A new source of medicinal plant in India’ discusses the medicinal property of the garden plant (Paul, 1993). Similarly in ‘A Note on the Occurrence of Gliricidia sepium (Jacq.) Kunth ex Walp (Papilionaceae) in Bihar’ discussed its morphology, nomenclature, and distribution (Mishra & Singh, 1997). Jacob Thomas et al., (1998) in their paper on ‘Wild ornamental plants of Western Ghats (Kerala)’ identified 139 wild species with desirable ornamental potential. Santhosh kumar et. al., (1998) describes the scope of certain native Strobilanthes sp. in gardening. Das (2002) in his paper on ‘Survey of Naturalized Exotics in the Flora of Darjeeling Hills, West Bengal (India)’ described 144 exotic species of which 63% were introduced as garden ornamentals. Kshirsagar & Patil (2002) enlists 77 exotic taxa including garden escapes in the Flora of Jalgaon district (Maharashtra). But a good number of plants with potential ornamentals are still at large and yet to be identified and domesticated.

On reviewing the literature it has become clear that a perfect work regarding the systematics of the garden plants and evaluation of their potential as landscape is still wanting not only for the district or the state but for the entire country. Therefore, the present study deals with species level identification, preparation of keys, updated nomenclature, detailed morphological descriptions, evaluation as a landscape specimen with special reference to its part, period and duration of attraction and nativity of ornamental plants grown in Thiruvananthapuram district of Kerala.