

Abstract

Botanical garden is a green space built by plants and the functions of which include research, geneplasm preservation, education, and recreation. Botanical garden is not only a place providing fresh air, but also a habitat offering observation of the adaptability of a variety of plants. Being in the sub-tropical area and on account of abundant ecological resources, botanical gardens, such as Hengchun Tropical Botanical Garden, Ilan Fushan Botanical Garden, and Taipei Botanical Garden, have been set up in Taiwan. Taipei Botanical Garden is a subtropical and the only metropolitan botanical garden in Taiwan. In addition to providing public activities, it also takes great accountability for academic research and educational promotion.

In the past, the botanical garden only focused on grouping and partition of the plants. The design and arrangement of the plants along the trail has not been done flawlessly. The present study investigated the situation of the plants in the Main Avenue and analyzed their suitability. The study proposes that the plants allocation in Taipei Botanical Garden can be applied in the design and arrangement of the plants along the trail in order to raise the quality of education and recreation of Taipei Botanical Garden. Currently, there are twenty-eight species of trees, fourteen species of shrubs, one species of vines, and eighteenth species of herbaceous plants outside twelve display areas along the Main Avenue. Analyses of the plants in the display areas, results of domestic and abroad botanical gardens, plants theory, ecological characteristics of the plants were used as major measurements. The results of the study showed that plants inside and outside the display areas were not consistent and that the plants along the trail were dull, lacking of color change for four seasons.

According to the results, four major points are organized as follows: First, the types of the plants should be coordinated with those in the display areas. Second, based on ecological characteristics, the plants suitable to be rear in Taipei are supposed to be chosen. Third, based on the aesthetic point of view, the plants the color of which changes with the four seasons should be singled out. Forth, the shapes of the plants and planting arrangements should be taken into consideration. The study also pointed out the plant species suitable for being planted in respective display areas according to trees, shrubs, and herbaceous plants layers. Planting layout and conjugation the are was applied for Taipei Botanical garden to use.

Following plant species are recommend: Tree species such as *Agathis dammara* (Lamb.) L. G. Rich., *Cinnamomum macrostemon* Hayata., *Garcinia linii* C. E. Chang., *Magnolia liliiflora* Desr., *Michelia champaca* L. *Pasania konishii* (Hayata.) Schottky. , *Sapium sebiferum* L. , Rox. *Homalanthus fastuosus* F. -Vill. , *Tabebuia chrysantha* (Jacq.) Nichols. , *Cleyera gymnanthera* Wight & Arn. , *Gordonia axillaris* (Roxb.) Dietr. , *Schima superba* Gard. et Champ., and *Celtis nervosa* Hemsl. , ; shrubs species such as *Cupressus macroglossus* Hartweg. cv. 'Goldcrest'. *Magnolia coco* (Lour.) DC. *Michelia figo* (Lour.) Spreng. *Lindera aggregata* (Sims) Kosterm. *Lindera akoensis* Hayata. *Excoecaria cochichinensis* Lour. *Jatropha pandurifolia* Andre. *Acalypha hispida* Burm. f. *Nerium indicum* Mill. *Gardenia jasminoides* Ellis. *Eurya emarginata* (Thunb.) Makino. *Rhodomyrtus tomentosa* (Ait.) Hassk. *Camellia sasanqua* Thunb. *Syzygium buxifolium* Hook. a Arn. *Licala grandis* H. Wendl. *Caryota mitis* Lour. *Chamaedorea erumpens* H.E. Moore; herbaceous species of *Chloranthus spicatus* (Thunb.). *Euphorbia marginata* Pursh. , *Plectranthus* 'Mona Lavender' . , *Campanula medium* L., *Asplenium nidus* L. *Dipteris conjugata* (Kaulf.) Reinw., *Quisqualis indica* Linn. *Cuphea hyssopifolia* H. B. K., *Alpinia shimadai* Hayata., *Hemerocallis fulva* Linn., *Freesia refracta* (Jacq.) Klatt., *Hedychium coronarium* Koenig. , and *Rubus triphyllus* Thunb. ex Murray.



Key words: Botanical garden; Plants allocation; Subtropical garden