S09.032
Heliconia Aspects for Landscape Use

Loges, V.[1]; Pinheiro, P. G. L.[1]; Felipe de Castro, M.[2]; Ribeiro de Castro, A. C.[3]

[1]UFRPE, PERNAMBUCO, BRAZIL

[2]UFPE

[3]EMBRAPA

Heliconiaceae family has ornamental species with exotic appearance, exuberant green foliage and colored inflorescence, adequate characteristics to be used as tropical garden plants. Only a few species have been evaluated from these aspects. In the Northeast Region of Brazil, the weather conditions are very suitable for growing heliconia plants. The Heliconia Germplasm Collection from the Federal Rural University of Pernambuco State (UFRPE) is being evaluated since 2003 in terms of ornamental traits and management for landscape use. The objective of this study is to report this experience and suggest traits to be used in pre-breeding and breeding programs in the selection of heliconia for landscape use. The aspects considered from clump, plant and inflorescence were: clump height; number of shoots; inflorescences per clump per month; clump area; growth habit (group or open); shoots in the internal part of the clump; commencement of flowering stage; flowering season; inflorescence type (erect or pendent); inflorescence visualization (visible, partial visible or hardly visible); bracts color; hair or wax presence on leaves or inflorescences; leaf and inflorescence color; days that inflorescence kept the quality in the clump; length of flowering cycle; general ornamental aspect of the clump; clump maintenance requirements and landscape use. The different Heliconia plants characteristics can be easily incorporated in tropical landscape design if their particular characteristics are taken into consideration. Most of the Heliconia genotypes are vigorous plants, low maintenance requirements and presents long flowering period. It represents a good option to be used for covering large open areas. It could be planted with other ornamental plants to create compositions with different colors, forms and textures.

S09.033
Study on the Species Diversity of Landscape Trees in University Campus of Inner Mongolia in China

Chen, Q.; Chen, G. L.

COLLEGE OF LIFE SCIENCES, INNER MONGOLIA UNIVERSITY, NO.235 DAXUE WEST STREET ,010021, HOHHOT, INNER MONGOLIA, CHINA

As landscape trees serve an ever increasing important role in campus gardening, great consideration has been taken into the species composition and application of woody plants. Therefore, after investigating three universities in Inner Mongolia autonomous region, which includes Inner Mongolia University (IMU), Inner Mongolia Agriculture University (IMAU) and Inner Mongolia Normal University (IMNU), we carried out a research focusing on the species diversity in campus. As is indicated, a total of 85 species in 29 families, with 10 species of ever green, 43 species of broadleaved trees and 32 species of shrub belonging to 2, 20 and 13 families respectively in it, are employed in campus garden. IMU, IMAU and IMNU each owns 63, 57 and 43 species, which belong to 24, 22 and 15 families respectively. Proportion of evergreen, broadleaved trees and shrub in IMU is propriety and makes the campus with four clearly distinct seasons. There is a lack of shrub in IMAU, which makes seasons do not clearly defined. We suggest that a homogeneous relationship between characters of buildings and landscape trees, a promotion of species diversity in campus gardening and a proper ratio of native trees would bring an identical character to university campus.

S09.034
Study on the Selection of Adaptive Shrub Species for Highway Slope Ecological Protection

Wu, C.[1]; Heng, Z.[1]; Huang, D.[1]; Lei, J.[2]; Xu, Y.[1]

[1]SHENZHEN TECHAND ECOLOGY &ENVIRONMENT CO.,LTD, CHEGONMIAO FUTIAN DISTRICT, 4D OF TIANXIANG BUILDING, 518040, SHENZHEN, GUANGDONG, CHINA

[2]SHENZHEN INSTITUTE OF LANDSCAPE SCIENCE, CHINA

Ecological protection on Highway Slope includes engineering protection measures and bio-defense measures. Vegetation restoration on the basis of net-suspended spray seeding (NSSS) or spray seeding (SS), the key is to select the adaptive shrub species and the ratio of these species. Through investigating bio-attributes and community of the plants on the ecological slopes with differentiating plant ratio, observing plant growth potential, measuring plant height, coverage, and so on, comparing the survival rate and important value of the plants, the dominant plant species adaptive to the slope environment were selected. The results showed: When *Cynodon dactylon* and *Robinia pseudoacacia*, *Lespedeza bicolor*, *Indigofera pseudotinctoria*, *Cassia corymbosa*, *Rhus chinensis* and *Dodonaea viscosa* mix of slope, *Cynodon dactylon* influenced the shrubs growth significantly. The important value of the shrub species is different in the trial of the slopes. Higher important value species such as *Indigofera pseudotinctoria*, *Lespedeza bicolor*, *Robinia pseudoacacia*, *Cassia corymbosa*, were the priority shrub species, that can be applied into the Expressway ecological protection which natural conditions were similar to Jiangxi province. When *Cynodon dactylon* was used in spray seeding as the adaptive grass species in summer, in order to avoid the competition between grass seedlings and shrubs, it is recommended that grass seeds were used by artificial broadcasting or adding it in the water when watering the slope after the shrubs had grown up to seedlings.

S09.035
The Hardening Mechanism and the Countermeasures of the Urban Landscape Soil

Zhou, Y.[1]; Yang, X. H.[1]; Bian, D. X.[1]; Ju, X. Y.[2]; He, W.[2]; Zhang, H. X.[2]; Kuang, P.[2]

[1]COLLEGE OF HORTICULTURE AND LANDSCAPE ARCHITECTURE, SOUTHWEST UNIVERSITY, CHONGQING, CHINA, NO.2 TIANSHENG ROAD, BEIBEI DISTRICT, CHONGQING, 400715, P.R.CHINA

[2]NANSHAN BOTANICAL GARDEN, CHONGQING, 400065, P.R. CHINA

The poor growth or death of the ornamental plants caused by the soil hardening in the urban landscaping areas have been become a serious problem which embarrassed the gardening workers for a long time. Researchers notice this problem and try to get some ways for solving it. Chongqing is a new biggest city of southwest China, where 30 millions population inhabit there and is well-known by it's mountainous character. The soil of urban landscaping in the main districts of Chongqing is in hardening condition which is investigated by us to probe both of the mechanism and the countermeasure of soil hardening in city. The results show that there are many reasons contribute to the urban soil hardening. But main factors can be concluded as the compaction, none-soil materials incorporated much, soil structure damage, low organic content, applications of chemical fertilizer and pesticide, shortage of vegetal covering, unreasonable plant disposition and soil microbial disturbances. To deal with these problems, the comprehensive countermeasures are put forward as follow. Setting protection equipments can avoid from the compaction. Collocating plants correctly is to increase cover of top soil. Application of biological fertilizers is to improve the organic contents, making use of microbiological technique is to improve plant nutrition condition, and adding the feasible amount earthworm is to improve the physical and chemical characters. These comprehensive measures are all benefit to achieve the sustainable development of the urban greenbelt.

S09.036
Studies Regarding the Behaviour of Some Ornamental Plants in the Big Parking Plots

Dumitrascu, M.; Manescu, C.; Stanica, F.

UNIVERSITY OF AGRONOMIC SCIENCES AND VETERINARY MEDICINE, MARASTI 59, SECTOR 1, 011464, BUCHAREST, ROMANIA

Trees in urban environments have important ecological functions. Green areas in parking are artificial spaces that offer restricted condition for ornamental plant growth and development. Low soil and planting volume, high temperature, limited water availability and pollution are unfriendly to trees and there are the main factors with negative influence on vegetation. A case study have been done regarding the behavior of different ornamental plants planted in the parking areas of a large commercial area. A series of aspects regarding the site and green areas systematization, the plant material and planting conditions have been studied. In the studied cases as also in the mostly parking plots, the green areas are structured as isolated spots