



Characteristics of Four Plant Species Used for Soil Bioengineering Techniques in River Bank Stabilization

Y. Liu (1), J.R. Gao (1), H.P. Lou (1), J.R. Zhang (1), and H.P. Rauch (2)

(1) College of Soil and Water Conservation, Beijing Forestry University, Beijing, P.R. China (jiaronggao@bjfu.edu.cn), (2) Institute of Soil Bioengineering and Landscape Construction, University of Natural Resources and Applied Life Sciences, Vienna, Austria

Abstract: Use the potential values of soil bioengineering techniques are important for the wide attention river ecological restoration works in Beijing. At first, demand for basic knowledge of the technical and biological properties of plants is essential for development of such techniques.

Species for each chosen plant material type should be selected with an emphasis on the following: suitability for anticipated environment conditions, reasonable availability in desired quantity and probability of successful establishment. Account on these criteria, four species which used as live staking and rooted cutting techniques were selected, namely, *Salix X aureo-pendula*, *Salix cheilophila*, *Vitex negundo* var. *heterophylla* and *Amorpha fruticosa* L.. And monitoring work was performed on three construction sites of Beijing. Various survival rates and morphological parameters data were collected. Concerning plants hydraulic and hydrological behavior, bending tests were used to analysis the flexibility of each plant species.

The results from rate and morphological parameters monitoring show that: *Salix cheilophila* performed the best. Other three plants behaved satisfactorily in shoots or roots development respectively. In the bending test mornitoring, *Salix cheilophila* branch had the least broken number. Then were *Salix X aureo-pendula* and *Amorpha fruticosa* L.. *Vitex negundo* var. branch had the highest broken number, but it tolerated the highest amount of stress. All plant species should be considered in the future scientific research and construction works in Beijing.

Keywords: River bank stabilization, live staking, rooted cutting