

不同流速梯度之植生抗流反應研究。2008第十七屆水利工程研討會

陳湘媛, 林鎮洋, 張育崧

景觀建築學系

建築與規劃學院

sharon@chu.edu.tw

摘要

Abstract

Natural disasters in Taiwan occurred more and more frequently and severely in recent decades. Researches on ecological engineering have therefore become imperative. However, most of the researches are on the flood mitigation management and the types, materials and construction methods of riverbank protection, or on the survival rate of suitable vegetations. There is little knowledge and research into the effects of vegetation on channel resistance and the flow resistance response. This study started from a simulated channel, and was aimed to investigate how the water plants responded to the different flow velocities as well as the kind of mechanism would develop. Next, examine the growth rate of water plants, growth rate and shape of shoots, tissue strength of the shoots and roots, tolerance and erosion resistance of plants to the varied flow velocities, suitability of local plants and precursory planting species. Finally, the role and limit of water plants in the water channel will be investigated and clarified. Study results show that *Oenanthe javanica* DC. (Water celery) experienced morphological variations at different flow velocities. In particular, the growth rate slowed and plant shoots were shorter and softer, to increase plant flexibility, as flow velocities increased. Root length and root anchorage decreased. Root, stem, and shoot mass were also found to be inversely proportional to flow velocity. Since suitable streambank vegetations might be composed of diverse varieties, the composition of cluster plants for the constructed channel will be further studied.

關鍵字 : Keywords: Flow resistance, Simulated channel, Water plant, Ecological engineering.