

模擬水道中水生植物抗流機制之種間差異研究

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摘要

The present study is carried out in a simulated channel for examining how different aquatic macrophytes respond to different channel flow velocities in terms of changes in their flow resistance mechanisms. Preliminary research of the planting material *Oenanthe javanica* DC. (water celery) showed that when facing higher flow velocity, the growth rate of water celery became slow and plant shoots were shorter and softer to increase plant flexibility. Root length and root anchorage decreased. Root, stem, and shoot were also found to reduce their biomass. It is significant for the following stage to examine the interspecific differences in flow resistance mechanisms among different planting materials since suitable streambank vegetation might include a variety of plants. The native species *Hygrophila salicifolia* (Vahl) Nee. was chosen as the next planting material. Experimental data show that the growth rate, dry weight, fresh weight, diameter of this planting material decreased as flow velocities increased. However, the average roots length, average height of *Hygrophila salicifolia* (Vahl) Nee. became higher when facing higher flow velocity. This is different to water celery. This research is anticipated to verify the suitable planting materials or precursors for riverbanks and, additionally, to clarify the roles and limitations of applying aquatic macrophytes in ecological engineering.

關鍵字 : Flow resistance; simulated channel; aquatic macrophytes; ecological engineering.