

Flow Resistance Mechanism of Aquatic Macrophytes in a Simulated Channel

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Abstract

The present study described in this paper was carried out in a simulated channel. The first part of the study examined how aquatic macrophytes respond to different channel flow velocities, in terms of changes in their flow resistance mechanisms, in order to confirm the suitability of local plants. The second part of the study examined the growth rate of the macrophytes, the growth rate and shape of macrophyte shoots, tissue strength of the shoots and roots, tolerance of the plants, and erosion-resistance response at various velocities. Study results show that *Oenanthe javanica* (Blume) DC. (water celery) experienced morphological variations at different flow velocities. In particular, as flow velocity increased, growth rate slowed and plant shoots became shorter and softer, which increased plant flexibility. Root length and root anchorage decreased. In addition, root, stem, and shoot mass also decreased.

Keyword : Key words: flow resistance, simulated channel, aquatic macrophytes, river/streambank protection.