Research on Adaptability of *Vetiveria zizanioides* to Flooding

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Extended Abstract

Morphological and physiological responses of vetiver to flooding and its resistance to flooding were studied. The results are as follows:

1. Potted plant assaying showed that vetiver could survive for 3 months in summer and 5 months in winter when they were fully flooded, and vetiver could resume growing gradually after removal of flooding.

2. Flooding inhibits the elongation of vetiver roots, and the younger seedlings, the more heavy inhibition was. On the condition of flooding, the root hair of vetiver was decreased significantly and the colour of the root system became black.

3. The biomass of the vetiver root system increased under moderate flooding while deeper flooding decreased it.

4. Under moderate flooding, the tillers increased and the biomass of above-ground parts has no significant difference. However, the tillers and the biomass of above-ground parts were all inhibited by deeper flooding .In addition, the height of vetiver was influenced by flooding.

5. The chlorophyll content, net photosynthetic rate, stomata conductance and transpiration rate of flooded vetiver were all higher than those of control group. On the flooding condition, the vigour of the old root system rose first and then fell. After two weeks, the flooded vetiver developed many new roots and the vigour of new roots were higher than that of the control group.

6. When vetiver was flooded, CAT activities increased greatly and MDA content rose slightly while SOD activities and the electrolyte leakage have no obvious differences between the flooded group and control group.

On the whole, vetiver showed much adaptation to flooding in morphology and physiology and had strong resistance to flooding. So vetiver is an amphibious plant and could be planted along riverbanks and reservoir banks where water levels fluctuate.

Key words: flooding, biomass, net photosynthetic rate, chlorophyll, SOD, electrolyte leakage