Genetic Modification of Wetland Grasses for Phytoremediation

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Wetland grasses and grass-like monocots are very important natural remediators of pollutants. Their genetic improvement is an important task because introduction of key transgenes can dramatically improve their remediation potential. Tissue culture is prerequisite for genetic manipulation, and methods are reported here for *in vitro* culture and micropropagation of a number of wetland plants of various ecological requirements such as salt marsh, brackish water, riverbanks, and various zones of lakes and ponds, and bogs. The monocots represent numerous genera in various families such as Poaceae, Cyperaceae, Juncaceae, and Typhaceae. The reported species are in various stages of micropropagation and *Arundo donax* is scaled for mass propagation for selecting elite lines for pytoremediation.

Transfer of key genes for mercury phytoremediation into the salt marsh cordgrass (*Spartina alterniflora)* is also reported here. All but one transgenic lines contained both the organomercurial lyase (*merB*) and mercuric reductase (*merA*) sequences showing that co-introduction into *Spartina* of two genes from separate *Agrobacterium* strains is possible.

Key words: Cell Culture, Mercury, Phytoremediation, *Spartina alterniflora*