



Capacity of regeneration and clonal reproduction of ligneous species used in biotechnical engineering according to a gradient of drought stress

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Erosion in rivers is a natural process which can however be stressed by human activities. The presence of anthropological issues downstream to the eroded lands leads the managers to implant a dense and long-lasting vegetation cover by using soil bioengineering techniques. The phreatophyte species (eg salicaceae) are commonly used because of their excellent regeneration capacity and resistance to anoxia. However bioengineering works undergo the global climate change and it becomes necessary to test new species stemming from more Mediterranean environment, considered as more tolerant to drought stress. A first approach of this study consisted in reviewing literature for determining such species. The bibliographical work shows three species sub-used in biotechnical engineering and potentially drought-tolerant: *Populus alba*, *Tamarix gallica*, *Myricaria germanica*. Therefore the experiments mainly consist in measurements of plant traits in relation with drought stress on cuttings (eg diameter and height of the stalk, foliar phenology, osmotic potential, assimilation). The objectives are declined around three axes: 1) cutting regeneration, 2) characterization of the roots and aerial developments and 3) influence of the distance in the groundwater of cuttings during the first months following the cutting installation. The experiment is also transposed in situ to propose species able to support climate change in the context of bioengineering for riverbank protection.