

عنوان مقاله:

Saltgrass, a potential future landscaping plant and a suitable species for desert regions: A review

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خلاصه مقاله:

Continuous desertification of arable lands mandates use of low quality/ saline water for irrigation, especially in regions experiencing water shortage. Using low quality/ saline water for irrigation imposes more stress on plants that are already under stress in these regions. Thus, a logical solution will be to find a salt/ drought-tolerant plant species that will survive/sustain under such stressful conditions. As the native plants are already growing under such conditions and are adapted to these stresses, they are most suitable for use under these harsh arid environmental conditions. If stress-tolerant species/ genotypes of these native plants are identified, there will be substantial savings in inputs (i.e., water, fertilizers, and agrochemicals) in using them under these stressful conditions. My research studies at the University of Arizona on various native grasses indicate that saltgrass (*Distichlis spicata*) has a great potential to be used under harsh environmental desert conditions, to combat the desertification processes. The objectives of this review article are to introduce saltgrass, a halophytic plant species, which through my investigations on various salinity and drought-tolerant halophytic plant species has proven to be the most tolerant plant species for recommendation as the potential species for use in arid regions and in areas with saline soils and limited water supply or drought conditions, for sustainable agriculture and for combating desertification. In my various investigations, different saltgrass clones/accessions/genotypes were studied in a greenhouse, to evaluate their growth responses under salinity or drought stress conditions. The grasses were grown vegetatively either hydroponically in culture solution for salt tolerance or in galvanized cans that contained fritted clay for drought tolerance. For salt tolerance, the grasses were grown under four treatments (EC = 6 (control), 20, 34, and 48 dSm⁻¹ salinity stress) with three replications in a randomized complete block (RCB) design experiment. During this period, the shoots were clipped bi-weekly for fresh and dry matter (DM) weight determination. At the last harvest, the roots were also harvested and the DM weights determined. For drought tolerance, the growth responses of the grasses were evaluated under a progressive drought condition for four months in a split plot design experiment with three replications. Shoots were harvested bi-weekly for DM determination. Although growth responses reduced at high salinity levels or as the ... drought period progressed, all the grasses s

کلمات کلیدی:

Combating desertification, halophytic plant species, sustainable agriculture

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