Effect of water stress in *Megathyrsus maximus* during vegetative growth and early selection of promising genotypes

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Megathyrsus maximus is a cultivated forage grass in tropical and subtropical regions of the world. In Argentina it is widely used in livestock systems due to its high production and forage quality. However, climatic restrictions, such as the scarcity of rainfall, cause yield losses in this species. The aim of this work was to characterize *M. maximus* genotypes under water stress conditions in early stages of growth through the measurement of physiological, biochemical, and morpho-agronomic parameters. Eight *M. maximus* genotypes (Green Panic (GR), Gatton Panic (GA), Mutale (MU), Vencedor (VE), Penquero (PE), 55PE, 73MU and 16GR) were evaluated in two soil water contents (SWC), control (80% SWC) and water stress (20% SWC, during 25 days). Significant differences were observed for the evaluated characters after 72 h of exposure to stress. GA presented the highest value of relative water content (RWC) without differences with its control, followed by GR. On the other hand, PE,16GR and 55PE registered the greatest difference (>30%). Regarding the maximum quantum efficiency of fluorescence (Fv/Fm), GR under stress conditions registered the highest value (0.78) without differences with its control, while VE and PE registered the lowest value (0.63 and 0 .64, respectively). All genotypes under stress conditions increased their malondialdehyde content (MDA), with the smallest differences compared with the respective control plants observed in 73MU (21%), GA (23%) and GR (34%). In contrast, PE, 16GR and VE differed by 208%, 149% and 131%, respectively. At the end of the assay, GR and GA registered the least reduction in aerial dry weight and height, while VE and MU were the most affected genotypes. GR and GA could be selected as stress tolerant genotypes, being VE and PE the most susceptible genotypes. In conclusion, it was possible to identify through early selection tools promising genotypes for tolerance to water stress in *M. maximus* that could be used in breeding programs.