

DROUGHT TOLERANCE MECHANISMS OF TWO BRAZILIAN SOYBEAN CULTIVARS: BR 16, DROUGHT SENSITIVE AND EMBRAPA 48, DROUGHT TOLERANT

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Water deficit is one of the major abiotic factors limiting crop productivity, therefore, studies on plant drought tolerance mechanisms are crucial. Previous work in several crops showed that one strategy plants use to cope with water deficit is declining transpiration at high soil moisture which allows water saving for periods when water deficit is critical, such as at pod filling. In this work we evaluated two Brazilian cultivars drought sensitive (BR 16); and drought tolerant (Embrapa 48) regarding transpiration and ureide (allantoin and allantoic acid) leaf content under two water regimes (well watered and drought stress). The results revealed that under drought stress, transpiration and allantoin and allantoic acid content did not differ between the cultivars, however, under well watered conditions BR 16 had both higher transpiration and ureide content. Higher differentiation among genotypes regarding these traits occurred when vapour pressure deficit in the atmosphere was higher (approximately 2.5 KPa). Water potential analysis showed that under the controlled condition leaf water potential values were less negative for cultivar BR16, while in the stressed condition it was the opposite. Therefore, it seems that for cultivar Embrapa 48 a conservative use of water, even when the soil moisture is sufficient to fully supply plant water demand, could be responsible for the maintenance of water in the soil profile for a longer period of time, which might be advantageous under conditions of a long drought spell and/or terminal drought.