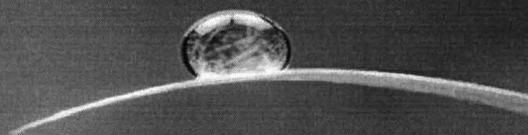


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191-11 Cuticular Wax Load On Leaves of Castor (*Ricinus communis* L.) Under Drought Stress.

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Tuesday, November 2, 2010

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Presentations

- 10.11 ASA Meeting.ppt (1.8 MB)

The cuticle wax covering aerial parts of plants is one of the mechanisms to reduce water loss, especially when water supply is limited. Reduction in transpiration through cuticle associated with stomata regulation are key processes for the water use efficiency under drought stress. Six genotypes of castor (*Ricinus communis* L.) were grown under seven irrigations treatments varying from 0.0 to 6.1 mm day<sup>-1</sup> (subsurface drip irrigation) in Lubbock, TX under an Amarillo soil series. When the analysis was performed, accumulated precipitation was 139.0 mm, and the highest irrigation treatment corresponded to 94% of ETo in average since the planting date. Thirty leaf disks were collected from mature leaves of 5 plants; cuticle wax was extracted with chloroform and weighted. All genotypes had reduced cuticular wax load proportional to increasing increments of water supplied. The maximum load of cuticular wax on leaves ranged among genotypes from 72.1 to 97.5  $\mu\text{g cm}^{-2}$ . Genotypes with ability to produce more cuticular wax have an advantage under drought stress. Comparing the plants without irrigation and under the highest irrigation treatment, reduction on cuticular wax among genotypes was in the range of 22.6 to 52%. Wax load is clearly related to drought stress; however, it has not yet been determined how important the cuticular wax is to the overall drought tolerance.

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