

**Agroecological comparison of canavalia, *Canavalia ensiformis* (L.) DC., and soya, *Glycine max* (L.) Merr under two irrigation frequencies.  
II. Foliar water potencial, Stomatal conductivity and Root distribution.**

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**Abstract**

Changes of folial water potential (Yh) and stomatal conductivity (g) in relation to soil water potential (Ys), during a soil drying cycle in *Canavalia ensiformis* (L.)DC cv. Tovar and *Glycine max* (L.) Merrill line FT-88011, were compared in experimental plots with 50.000 and 400.000 p/ha, at the CENIAP Experimental Station in Maracay, Venezuela. Vertical root distribution and some anatomical leaf aspects were also evaluate in these genotypes. The treatments were: canavalia watered every 4 days (C5), canavalia watered every 10 days (C10), soybean watered every 5 days (S5) and soybean watered every 10 days (S10). The water lamina used was 23 mm starting on the stadium V3 (3 knots in the main axis), but precipitation occurred in march totalling 147 mm, causing homogenization of the soil, and as a result, it was necessary the suspension of the treatments during 11 days. The characteristics of the loamy-sandy soil permitted quick drying, and after six days with out rain it was possible to compare the reaction of the species before the reduction of water soil. Canavalia plants showed better leaf water conditions during soil drying, with Yh values significantly higher than soybean (P<0,01), within -0,16 to -1,30 MPa range, although no differences were found when Ys was -1,61 MPa. The relationships between g and Ys and g and Yh, showed a higher stomatal sensibility in soybean in relation to canavalia. No differences were found between species as to root system distribution, with a maximum root penetration of 40 cm. Leaf anatomy was similar in canavalia and soybean, but leaf tickness was significatively higher in canavalia (P<0,01).

**Key words:** Folial water potential, soil water potential, stomatal conductivity, *Canavalia ensiformis*, *Glycine max*.

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