



## The effects of exogenous application of glycine betain on growth and some physiological characteristics of *Brassica napus* under drought stress in field condition

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### Abstract

This study was conducted to evaluate the role of exogenous application of glycine betaine in improving drought tolerance of *Brassica napus*. The study was performed on randomized complete block design with 3 replications. Different amounts of glycine betaine (0, 100 and 200mM) in combination with various irrigation intervals (3, 6 and 9 days) were considered as experimental treatments. Results indicate that application of glycine betaine as an organic osmolyte cause a considerable increase in *Brassica napus* hydrocarbons as well as proline in water deficiency condition when compared to control. In water deficiency condition, application of 200 mM glycine betaine causes a significant increase in *Brassica napus* dry weight as well as chlorophyll content when compared to control. Also, drought tolerance indices showed that exogenous application of glycine betaine can increase stability of *Brassica napus* dry matter production at 6 and 9 irrigation days' intervals when compared to 3 days' intervals. Overall results indicate the possible use of osmotic adjustment materials to improve growth of *Brassica napus* under water stress condition.

**Keywords:** deficit of irrigation, hydrocarbon, proline, chlorophyll, organic osmolytes, glycine betaine.

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