Black cumin (*Nigella sativa* L.) response to PSB and date and plant density in dry farming systems in semiarid condition

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Objective: change the seeding time, use of phosphorus solubilizing bacteria and chose different plant densities are the most typical factors that influence the plant characteristics, morphological indicators and grain yield in Black cumin.

Methods: threes seeding dates (28 October, 11 and 25 November), three phosphorus resource (control, 50% recommended Ammonium Phosphate + biological Phosphorus, and biological Phosphorus alone) and three plant densities (20, 30 and 40 plants/m2) were applied as split-split plot arrangement in RCBD at three replications in farm condition in Qazvin, Iran in 2015 and 2016.

Results: change the number of carpels per capsule from to 6.09, number of grain per plant? from to 2679), grain weight per plant from to 6.04g), grain yield from? to 1590 kg/ha are some of results that were obtained by change the seeding time from? to November 11. number of grain per capsule and number of grain per carpels increased by biological phosphorus application significantly. Also maximum number of grain per plant and grain weight were obtained in 20 plants/m2 density.

Conclusions: Results of this study have showed that application of A. absinthium extract can improve heal¬ing process of damaged Achilles tendon.

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