The Effects of organic fertilizers on carotenoid compounds and yield in saffron (*Crocus Sativus* L.)

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In order to assess some physiological and agronomic traits in saffron, a factorial experiment based on randomized complete block design with four replications carried out in Neyshabour, Iran during 2015-2016. The experimental treatments were all combinations of three levels of organic fertilizers, including Vermicompost, Spent Mushroom Compost (SMC) and Processed Spent Mushroom Compost (PSMC), and five levels of application amounts (0, 1, 2, 3 and 4 $t.ha^{-1}$). Results showed that all parameters were affected by main effects and interactions, so applying all fertilizer types increased studied traits in comparison with control. In addition, more rates of all fertilizers, showed higher amounts of parameters. For instance, applying 5 $t.ha^{-1}$ PSMC demonstrated the highest percentage of crocin, picrocrocin and safranal (24.3%, 18.1% and 11.7% respectively). Besides, this treatment represented the greatest effect on flower numbers (191.3 per m^2) and stigma dry weight (7.14 $kg.ha^{-1}$). Moreover, results displayed that there are significant positive correlations between percentage of crocin with picrocrocin, stigma dry weight and flower numbers.

Keywords: saffron, organic fertilizers, crocin, picrocrocin, safranal, and dry stigma yield.