O-18 (97)

EFFECT OF POTASSIUM SULFATE, NANO POTASSIUM CHELATE AND HUMIC ACID ON YIELD AND SOME MORPHOLOGICAL AND PHYSIOLOGICAL TRAITS OF GRAPE `BIDANEH SEFID´ CULTIVAR ON VINEYARD CONDITION

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The effect of foliar application of different concentrations (0, 1000 and 2000 mg/liter) potassium sulfate, nano potassium chelate and humic acid on yield, qualitative and quantitative characteristics **'**Bidaneh Sefid**'** grapevine cultivar in a commercial vineyard were studied during 2013-2015 years. Foliar treatments three times, including once before flowering, fruit set after two weeks and one month after the second stage were carried out. Based on the results, the highest concentration of potassium and zinc of leaf were obtained in 2000 mg/liter level of potassium sulfate treatments. The maximum amount of phosphorus and iron of leaf were observed in 2000 mg/liter concentration of nano chelate potassium treatments. Also the treatment of humic acid at concentrations of 2000 mg/liter showed the most increasing on the leaf area (1207.7 cm^2) compared to control. The most significant effect on increasing of yield (128.7 kg/vine) and TSS (27.39%) were showed with treatment of the nano potassium chelate fertilizer (2000 mg/liter). The most concentrations of starch (81.87 mg/m FW) and carbohydrates (39.19 mg/g FW) were calculated in potassium sulfate and humic acid at concentration of 2000 mg/liter, respectively. Results showed the most increasing on the resveratrol (3.56 mg/g FW) in treatment of the nano chelate potassium and humic acid with concentrations of 2000 mg/liter. So, according to the results of this study, potassium sulfate, nano potassium chelate and humic acid tretments with concentrations of 2000 mg/liter had noticeable impact on the quantity and quality of **'**Bidaneh Sefid**'** cultivar.

Keywords: Grape, Foliar application, Nutrients elements, Soluble carbohydrates, Resveratrol.