



## Quality attributes of *Flame seedless* grapes as affected by some bio-stimulants

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**Abstract :** This study was undertaken during 2014 and 2015 seasons to investigate the beneficial effects of different bio-stimulants as foliar application on chlorophyll, nutritional status, yield and physico-chemical characteristics of grapevines cv. '*Flame seedless*'. Multiple types of bio-stimulants such as a): microbiota [*Bacillus megaterium*, *Bacillus subtilis*, *Azospirillum lipoferum*, and yeast (*Saccharomyces cerevisiae*)] b): algae [*Scenedesmus obliquus*, *Spirulina platensis* and seaweed (*Ascophyllum nodosum*)] were evaluated. However, control treatment was water spray. Furthermore, all treatments with reference to the standard applied GA<sub>3</sub> treatments. Each bio-stimulant was sprayed one time at five grapevine-phenological growth stages. The obtained results showed that the majority of these responses were significantly higher than control and some than the standard GA<sub>3</sub> treatment. Generally, using algae extract of *Ascophyllum nodosum* at 4g/L led to clear enhancements in the majority of the tested vegetative and fruiting parameters of *Flame seedless* grapevines.

**Key words:** Grapevine, *Flame seedless*, Bio-stimulant, Vegetative growth, chlorophyll, Nutritional status, Yield and Quality parameters.