Open Conference on Grapevine Physiology and Biotechnology
LOGROÑO - LA RIOJA
7-11 July 2024

Impact of seaweeds extracts applied to grapevine cv Tempranillo

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Abstract

Grapevine is one of the most-frequently phytosanitary treated crop systems. Consequently, restrictions have been applied by the European Commission on the number of pesticide treatments and the maximum quantity of copper fungicides allowed per year. Moreover, there is a need and an increasing demand for more ecological-sustainable agricultural products.

Seaweeds are currently used as fertilizers in viticulture, as they have been proven to be beneficial in several ways related to growth and nutrition. In addition, some seaweeds have shown to induce resistance towards phytopathogenic organisms by stimulating the natural defenses of grapevines.

In this work two seaweed extracts, one from *Ulva ohnoi* and one from *Rugulopteryx okamurae,* have been tested in Tempranillo plants in an open-field experiment in Jerez de la Frontera. The goal was to describe their impact on grape quality and microbial ecology.

Interestingly, while treatments did not enhance grape yield, significant differences were found in shoot length and grape composition. Both seaweeds promoted the accumulation of tannins, while anthocyanins were significantly higher only in Ulva treated grapes. Grapes fungal and bacterial identification is being conducted to determine whether seaweeds alter the abundances of important taxa from the winemaking viewpoint.

This is the first field trial applying extracts from the invasive seaweed *Rugulopteryx okamurae* in grapevine, and while the experiment should be repeated on time, this seaweed extract is sought to be a promising solution meeting viticultural demands. At the same time, its use in agriculture could contribute to decreasing the algae accumulation from our coasts.

Keywords: quality, polyphenols, microbiome, *Ulva ohnoi, Rugulopteryx okamurae*