Título: ESTUDIO SOBRE EL PAPEL DEL ÁCIDO ABSCISICO Y LAS POLIAMINAS EN LA MADURACIÓN DEL FRUTO BAJO CONDICIONES DE RIEGO DEFICITARIO EN VID (VITIS VINIFERA L.)

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El fichero de tesis no ha sido incorporado al sistema.

Resumen: Study on the involvement of abscisic acid and polyamines in berry ripening of Vitis Vinifera (L.) subjected to water deficit irrigation Key words: ABA, deficit irrigation, partial rootzone drying, polyamines, fruiting cutting. An increased attention is being addressed to grapevine irrigation due to the importance of a rational use of water without reducing grape yield and quality. Partial rootzone drying (PRD) is an irrigation system that permits better control of vegetative growth without reducing fruit yield. However, little is known about how grapevine reproductive development is regulated when irrigated under PRD. Therefore, the aim of this study was to investigate the relationship between abscisic acid (ABA) and polyamines (PA) in leaves and berries during ripening, and how hormonal balance is affected under different irrigation regimes. The experiments were carried out using container-grown Superior Seedless and Tempranillo grapevines (established as fruit-bearing cuttings) with a split root system (occupying two contiguous pots) and grown under controlled conditions. Three irrigation treatments were imposed ¿ a control (well watered), and two forms or deficit irrigation, viz. partial rootzone drying (PRD), and sustained deficit irrigation (SDI). Under SDI, a given volume of irrigation water was applied uniformly and simultaneously to both sides of the split roots of each vine. Under the PRD regime, the same total volume of irrigation was applied, but as separate allocations to each side of the split root system in turn, and alternating on a 10-day cycle. Vegetative growth was decreased in plants subjected to deficit irrigation (SDI and PRD). However, in Superior Seedless, yield and weight per bunch were both reduced significantly under SDI, but were sustained close to control values under the PRD regime. No differences in yield and berry weight between PRD and SDI were found in Tempranillo, but PRD had enhanced fruit quality due to greater polyphenol

content. In leaves, an increase in ABA coincided with a decline in PA but in berries, indicating that there was a direct relationship between the two hormones. At onset of veraison, PRD berries have higher ABA, free PA and free to bound PA ratio than other treatments. Results suggest that early accumulation of ABA and PA in berries might produce earlier fruit ripening, improving yield and fruit quality. Although the restriction of vegetative growth in PRD might be partly a response to the volume of water applied and therefore similar to a SDI response, results suggest that specific hormonal factors may explain effects on the reproductive growth and yield.