

## NaCl胁迫对葡萄幼苗根际pH值及营养成分的影响

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Effects of NaCl stress on pH values and nutrient elements around rhizosphere of young grapevines

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**摘要** 采用多隔层根际培养的方法,研究了NaCl胁迫下赤霞珠葡萄幼苗根际土和非根际土的pH值以及主要营养成分的变化。结果表明,NaCl处理对赤霞珠葡萄幼苗的生长造成了不同程度的抑制。不同NaCl处理下,葡萄幼苗根际土壤pH均低于非根际土,各层土壤的pH随盐胁迫程度加深而增高;水溶性K<sup>+</sup>在根际含量较低,水溶性Na<sup>+</sup>和Ca<sup>2+</sup>在根际富集。非盐渍条件下,葡萄幼苗根际碱解氮增高,而在盐胁迫下下降。在4 g/kg NaCl胁迫下,葡萄根际有效磷降低,其它处理下升高;而水溶性Mg<sup>2+</sup>则相反。试验结果还表明,Na<sup>+</sup>的存在阻碍了根系对多种矿质营养的吸收和利用,影响了葡萄的正常生理活动,不同程度地限制了葡萄根系的生活力和吸收能力。在Na<sup>+</sup>的作用下,K<sup>+</sup>、Ca<sup>2+</sup>、Mg<sup>2+</sup>的迁移和吸收受到不同程度的影响,与对照相比,各层土壤中的几种离子的含量均有所变化。

**关键词:** 葡萄幼苗 盐胁迫 根际土壤 矿质营养 葡萄幼苗 盐胁迫 根际土壤 矿质营养

Abstract:

The changes in pH values and primary nutrient elements around rhizosphere soil and non-rhizosphere soil of Cabernet Sauvignon young grapevines under salt stress were studied by using rhizobox cultivation experiment. The results showed that pH values of rhizosphere soil were lower than non-rhizosphere soil under different salt stresses, pH values of each layer increased with salt stress. Water-soluble potassium ions were lost, but water-soluble sodium ions and calcium ions were enriched. Alkali-hydrolyzable nitrogen was enriched without salt stress, but was lost under salt stress. Available phosphorus was lost when stressed in 4 g/kg salt, and enriched under other treatments. Water-soluble magnesium ion was enriched when stressed in 4 g/kg salt, and lost under other treatments. The results indicated that sodium ion blocked the root system from absorbing and utilizing the mineral nutrients, affected normal physiological activities of young grapevines, and restricted root activity and absorption ability of young grapevines. With the effect of sodium ion, the transfer and absorption of potassium ion, calcium ion and magnesium ion were affected to different extents. Compared with CK, the content of these ions changed in each layer.

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