

## **Effects of Calcium Fertilizer on Physiological and Biochemical Characteristics, and Resistance Gene Expression of Peanut Seedlings Under Waterlogging Stress**

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This paper focus on the resistance of calcium to waterlogging injury of peanut seedlings. The physiological and biochemical characteristics of peanut seedlings were negatively affected by waterlogging stress. The application of calcium fertilizer (800 mg/kg and 1600 mg/kg of Ca<sup>2+</sup>) can significantly improve the plant characters (biomass, root / shoot ratio, root surface area and total root length), leaves photosynthetic performance (chlorophyll content, net photosynthetic rate) of waterlogged peanut seedlings. Moreover, the activities of POD, CAT and SOD, and genes expression of CaM, Ah-GLB of waterlogged peanut seedlings roots were significantly increased, while the content of MDA remarkably decreased. Especially, calcium fertilizer showed a dose-dependent relationship, and the high dose (1600 mg/kg) existed the best effects when resistance to waterlogging stress of peanut seedlings. Here, we explored the regulation mechanism of calcium on physiological indexes and resistance genes of waterlogged peanut seedling, and provide an important theoretical basis for waterlogging disaster mitigation and avoidance in crop production.