

## 不同品种菠菜叶柄和叶片的硝态氮含量及其与植株生长的关系

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## Nitrate accumulation in petiole and blade of different spinach cultivars and its relation to plant growth

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**摘要** 温室盆栽试验研究了我国北方不同菠菜品种叶柄和叶片的硝态氮含量及其与植株生长的关系。结果表明,30个菠菜品种地上部分的生长量和硝态氮含量存在显著差异。叶柄和叶片在反映品种间生长量和硝态氮含量变异方面的作用并不相同。叶片占植株地上部鲜重的比例高于叶柄,品种间叶片生长量的差异亦大于叶柄,叶片与植株生长量的正相关关系更为显著。但与生长量的情况不同,叶柄的硝态氮含量、累积总量均显著高于叶片,是菠菜累积硝态氮的主要器官。叶柄硝态氮含量的品种间差异远大于叶片,与植株地上部硝态氮含量的正相关性更为显著。菠菜不同品种之间,叶柄硝态氮含量与地上部鲜重、干重及水分均表现出显著的正相关关系,而叶片硝态氮含量与植株生物量及其各组分之间却无这种关系。

**关键词:** 菠菜 叶柄 叶片 硝态氮 生长量 菠菜 叶柄 叶片 硝态氮 生长量

**Abstract:** Pot experiment was carried out in greenhouse, with 30 spinach cultivars widely grown over northern China as test crops, to study nitrate accumulation in petiole and blade of different spinach cultivars and its relation to plant growth. Fertilization rate was P 0.13 g/kg and N 0.60 g/kg soil. Results showed that there was a significant variation of the shoot biomass and nitrate N concentration in shoot over these 30 spinach cultivars. The process of petiole in reflecting the variation of plant growth increment and nitrate accumulation among spinach cultivars was not coincided with that of blade. Leaf blade accounted for higher proportion to fresh shoot weight than petiole, and variation of the fresh blade weight over cultivars was higher than that of petiole too. Further more, a significant positive correlation was found between fresh weights of blades and shoots. Being different from the case of biomass, nitrate N concentration and the total nitrate N accumulated in petiole were significantly higher than those in blade. The petiole was the dominant organ for nitrate accumulation in leafy vegetables obviously. The variation of nitrate N concentrations in petioles was significantly higher than that in leaf blade and its correlation is more significant than that of leaf blade as well. Further analysis showed that nitrate N concentration in petiole was significantly correlated with the fresh shoot weight, dry shoot weight and the total amount of water over different cultivars. However this relationship was not found for the blade.

**Keywords:**

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