

## **Influence of Various Ratios of Nitrogen Nutrition on Photosynthetic and Sugar Metabolism of Cotton**

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**Abstract:** The present study was conducted under controlled hydroponics to value the influence of various ratios of nitrogen nutrition on photosynthetic and sugar metabolism of cotton seedlings. The results showed that compared with single nitrogen nutrition, cotton had the maximum of net photosynthetic rate and chlorophyll content in leaves when  $\text{NH}_4^+/\text{NO}_3^-$  ratio in solution was 25/75. Meanwhile, nitrogen nutrition signifi-

cantly affected carbohydrate metabolism in various organs of cotton. The relative content of soluble sugar in various organs and the accumulation of soluble sugar in whole cotton plant were maximal in Enhanced Ammonium Nutrition condition, and minimal in single ammonium nutrition. However, the relative content of starch of the treatments over 25/75 ( $\text{NH}_4^+/\text{NO}_3^-$ ) ratio was less than that in single nitrate nutrition solution. The starch accumulation of cotton plant was maximal in solution of 25/75 ( $\text{NH}_4^+/\text{NO}_3^-$ ) ratio and minimal in solution of 100/0 ( $\text{NH}_4^+/\text{NO}_3^-$ ) ratio.

**Key Words:** cotton; nitrogen; photosynthesis; sugar