

研究论文

冬小麦群体根系³²P吸收活力与群体光合速率关系的研究

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摘要 利用同位素示踪技术, 研究了冬小麦(鲁麦14)群体根系吸收活力和群体光合速率变化动态之间的关系。结果表明: 返青到成熟, 冬小麦群体根系³²P吸收活力与群体光合速率符合回归方程 $y=2.050+1.641x(r=0.8163^*)$; 群体根系³²P吸收活力与根层¹⁴C光合产物集运速率显著相关($r=0.9629^{**}$), 其变化主要受根层、茎层、叶层³²P矿质集运速率的影响; 群体光合速率的变化与根层、茎层和叶层的³²P矿质集运速率之间的关系都极为密切, 其变化显著受根层¹⁴C光合产物集运速率的影响; 根层、叶层和穗层的¹⁴C光合产物集运速率与其³²P矿质集运速率的变化之间关系密切。

关键词 [冬小麦](#) [群体根系³²P吸收活力](#) [群体光合速率](#) [¹⁴C光合产物集运速率](#) [³²P矿质集运速率](#)

分类号

Study on the Relationship between ³²P Absorption Vigour of Root Population and Canopy Apparent Photosynthetic Rate in Winter Wheat

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Abstract The trend of root population absorption vigour (RPAV) and canopy apparent photosynthetic rate (CAPR) and the relationships between them on winter wheat (variet: Lumai 14) which was planted on pondlets were studied by using isotope tracer and canopy photosynthesis measurement techniques. The results showed that the change of root population ³²P absorption vigour is significantly related to canopy apparent photosynthetic rate ($r=0.8163^*$), its optimum regression equation is $y=2.050+1.641x$. The ³²P RPAV related to ¹⁴C photosynthate accumulation rate of root significantly ($r=0.9629^{**}$), and its change is mainly influenced by ³²P mineral accumulation rate of roots, stems and leaves. The change of CAPR is significantly related to roots, stems and/or leaves ³²P mineral accumulation rate, respectively. And its change is significantly influenced by the ¹⁴C photosynthate accumulation rate of roots. There are close correlations between ¹⁴C photosynthate accumulation rate and ³²P mineral accumulation rate of roots, leaves and spikes respectively.

Key words [Winter wheat](#); [Root population ³²P absorption vigour](#); [Canopy apparent photosynthetic rate](#); [¹⁴C photosynthate accumulation rate](#); [³²P mineral accumulation rate](#)

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