

不同氮肥水平下寒地粳稻器官不同形态氮含量变化特征研究

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Effect of Nitrogen Fertilization Rates on the Variation Characteristic of Different Nitrogen Forms Contents in Japonica Rice under the Cold Region

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摘要

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**摘要** 以寒地粳稻松粳6号和松粳9号为试材, 研究了氮素用量对寒地粳稻植株营养性氮素(AN)、功能性氮素(FN)和结构性氮素(SN)形成积累及其变化的影响。结果表明, 施氮水平对两品种功能叶片和茎秆AN和SN含量影响较大, 且品种间影响程度不一致; 而子粒AN和SN含量对施氮量反应不敏感。施氮量对两品种功能叶片和子粒FN含量影响较大, 而对茎秆FN含量影响较小。两品种功能叶片和茎秆AN含量随着生育进程的推进呈单峰曲线变化, 均在灌浆期达到峰值; 子粒AN含量随生育进程推进呈“高一低一高”的变化趋势。两品种各器官FN含量均随生育进程而升高, 在灌浆后期叶片和茎秆FN含量逐渐下降, 子粒FN含量则小幅升高; 松粳9号子粒FN含量大于松粳6号。两品种叶片和茎秆SN含量(除松粳9号N0、N100和N200处理外)表现为先上升后下降, 开花期最高; 子粒SN含量自开花到成熟均呈缓慢下降趋势; 松粳9号叶片和茎秆SN含量大于松粳6号。相关分析可知, 功能叶片和茎秆(除孕穗期外)各时期AN含量与产量呈显著或极显著正相关关系; 子粒SN和FN含量分别与产量呈显著和极显著正相关关系。

**关键词:** color: black font-family: 宋体 mso-font-kerning: 1.0pt mso-ansi-language: EN-US mso-fareast-language: ZH-CN mso-bidi-language: AR-SA mso-ascii-font-family: 'Times New Roman' 寒地粳稻)" href="#">mso-bidi-font-family: 'Times New Roman'">寒地粳稻 氮素用量 营养性氮素 功能性氮素 结构性氮素

**Abstract:** Nitrogen(N) fertilizer is one of the most important factors affecting grain yield in rice. The experiment investigated the effect of nitrogen application on the variation characteristics of the contents of three nitrogen forms [assimilable nitrogen(AN), functional nitrogen(FN), and structural nitrogen(SN)] in different organs using two rice varieties of cold Japonica (Songjing 6 and Songjing 9) as test materials. The results showed that nitrogen levels affected AN and SN contents in the functional leaves and stems significantly, and varied with the varieties, while it had slight effect on the AN and SN contents in grains. Nitrogen application rate had more significant influence on the FN content in function leaves and grains than in stems of two varieties. For both varieties, AN contents in functional leaves and stems presented a single peak curve with the growth process, and reached the maximum at the filling stage; while AN content of grains showed a "high-low-high" variation tendency. FN contents in different organs of both varieties were increased with the growth process generally, but the FN contents of leaves and stems decreased gradually in later filling stage. In grains, FN content of Songjing 9 was higher than that of Songjing 6 SN contents in leaves and stems of both varieties (except N0, N100 and N200 treatment of Songjing 9) increased firstly and then decreased, and it reached the maximum at anthesis stage; SN content in grains showed a slow downward trend from anthesis to maturity; SN contents in leaves and stems of Songjing 9 were higher than that of Songjing 6 The AN contents in the functional leaves and stems for whole growing stages (except booting stage) and the SN, FN contents of grains were significantly positively correlated to the yield.

**Keywords:** Japonica rice in cold region)" href="#">text-indent: -51.95pt">Japonica rice in cold region nitrogen application rate assimilable nitrogen functional nitrogen)" href="#"> functional nitrogen structural nitrogen

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