

## 玉米鲜样氮磷联合诊断方法和测定部位研究

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Study on measuring parts and combined diagnosis methods for N and P of fresh corn

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**摘要** 采用“3414”氮磷二元二次肥料试验方案设计田间小区试验,应用便携式高强度光度计对玉米鲜样第三、第六位叶肉和叶鞘硝态氮、铵态氮及可提取磷进行田间现场快速联合测定。结果表明,同一叶位叶肉与叶鞘之间硝态氮、铵态氮及可提取磷含量差异很大,经t检验,差异均达极显著水平。不同叶位相同部分氮、磷元素含量也有一定差异,经t检验,第三位与第六位叶肉硝态氮、铵态氮和叶鞘铵态氮的含量差异不显著,而叶肉和叶鞘可提取磷、叶鞘硝态氮的含量差异均达极显著水平;不同叶位各部分对应的硝态氮、铵态氮与施氮量和全氮呈正相关;可提取磷与施磷量和全磷也呈正相关关系,且第三位叶鞘相关性最好,均达极显著水平,该部位具有作为氮、磷营养状况诊断部位的可能性。硝态氮从反映土壤氮素水平和试剂成本上比铵态氮更适合作为诊断玉米植株氮营养状况的指标。

**关键词:** 玉米 硝态氮 铵态氮 可提取磷 联合诊断 测定部位 玉米 硝态氮 铵态氮 可提取磷 联合诊断 测定部位

Abstract:

The '3414' field experiment on nitrogen and phosphorus fertilization were carried out in a corn field in Chongqing, China. Nitrate-nitrogen, ammonium-nitrogen and extractable phosphorus of leaves and sheaths at the third and sixth places of fresh corn were determined rapidly by using a portable high-strength photometer at the sites. The results indicate that there are significant differences between nitrate-N, ammonium-N and extractable P contents of leaves at the same place and those of sheaths, respectively. The differences between the N and P contents of leaves at the same part of the different places are not accordant. The differences of nitrate-nitrogen, ammonium-nitrogen of leaves and ammonium-nitrogen of sheaths between the third place and the sixth place are not significant. While the differences of extractable phosphorus of leaves and sheaths and nitrate-N of sheaths between the third place and the sixth place are all at 1% significant levels. Nitrate-nitrogen, and ammonium-nitrogen of every part of leaves at the different places are positively correlated with the N application rate and total N, respectively. At the same time, extractable phosphorus of every leaf part at the different places is positively correlated with the P application rate and total P. And the relativity of sheaths at the third place is the best, and all the correlations are at 1% significant levels. The optimal part for determining nitrate-N, ammonium-N and extractable P at the same time is sheaths at the third place. Nitrate-N is better than ammonium-N to diagnose nitrogen nutrition of corn from theregent costand content level of soil nitrogen.

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