

## 典型红壤丘陵区土壤氮素含量及其分布的演变规律

刘守龙<sup>1,2</sup>; 黄道友<sup>2</sup>; 吴金水<sup>2</sup>; 黄敏<sup>1,2</sup>; 肖和艾<sup>2</sup>; 宋变兰<sup>2</sup>; 苏以荣<sup>2</sup>

1. 华中农业大学资源与环境学院 湖北武汉430070; 2. 中国科学院亚热带农业生态研究所亚热带农业生态重点实验室 湖南长沙410125

## Evolution pattern of soil total N content and its distribution in typical hilly red soil regions

LIU Shou-long<sup>1,2</sup>; HUANG Dao-you<sup>2</sup>; WU Jin-shui<sup>2</sup>; HUANG Min<sup>1,2</sup>; XIAO He-ai<sup>2</sup>; SONG Bian-lan<sup>2</sup>; SU Yi-rong<sup>2</sup>\*

1 College of Resour. and Envir.; Huazhong Agric. Univ.; Wuhan 430070; China; 2 Inst. of Subtropical Agric. CAS; Key Lab. of Subtropical Agric. Ecology; Changsha 410125; China

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**摘要** 通过对湖南省桃源县典型区域高密度采样分析和历史资料调研,探明了红壤丘陵区不同土地利用类型13年来(1990~2003)土壤氮素含量及其分布的变化:1)典型区域2003年的稻田氮素含量为 $1.94 \pm 0.02$  g/kg,比1990年提高4.9%,主要分布区间由1990年的1.25~2.00 g/kg(分布频率为59.1%,下同)上升到2003年的1.50~2.25 g/kg(77.1%),曲线图上呈近似正态分布向右偏态分布的演变趋势;2)旱土2003年的氮素含量为 $1.57 \pm 0.14$  g/kg,比1990年提高18.0%,1990和2003年主要分布区间都为0.75~1.50 g/kg(58.2%~58.8%),但2003年分布在1.50~2.00 g/kg区间的频率为33.6%,比1990年的高出12.7个百分点,曲线图上由呈现左偏态分布向正态分布的演变趋势;3)以坡地橘园为主的林果地,2003年的氮素含量为 $1.15 \pm 0.02$  g/kg,比1990年提高9.5%,两者的主要分布区间虽然均在0.75~1.50 g/kg之间,但2003年在此区间的分布频率为88.0%,比1990年的高出10.2个百分点,其演变趋势与稻田的基本一致;4)整个采样调研区域农业用地的土壤氮素含量,2003年的为 $1.58 \pm 0.03$  g/kg,比1990年提高3.3%。这表明在当前的施肥方式与经营管理条件下,红壤丘陵区农业用地的土壤氮素含量稳定并有增加的趋势。

**关键词:** 土壤氮含量 变化趋势 红壤丘陵区 土壤氮含量 变化趋势 红壤丘陵区

**Abstract:** Taking Taoyuan city as research target area, the evolution pattern of soil N content and its distribution during the last 13 years(1979—2003) under different land uses in hilly red soil regions was investigated. The results showed as follows: 1) The content of total N of paddy soil in typical area in 2003 was  $1.94 \pm 0.02$  g/kg. This represented a 4.9% increase compared to that in 1990. The main distribution range increased from 1.25—2.00 g/kg (distribution frequency was 59.1%, The same below) in 1990 to 1.50—2.25 g/kg (77.1%) in 2003, showing a tendency from the quasi normal distribution to right excursion distribution on the diagram of curves. 2) The content of total N of dry land soil in 2003 was  $1.57 \pm 0.14$  g/kg, which represented a 18.0% increase compared to that in 1990. Main distribution range was 0.75—1.50 g/kg (58.2%—58.8%) both in 1990 and 2003; however, the distribution frequency ranged in 1.50—2.00 g/kg in 2003 was 33.6%, which was 0.9% higher (increased by 60.8%) than that in 1990. The distribution curve shifted from left excursion distribution to normal distribution. 3) The content of total N in orchard soil (orange in slope land) was  $1.15 \pm 0.02$  g/kg in 2003, which represented a 9.5% increase compared to that in 1990. Main distribution range in 1990 and 2003 was similarly being 0.75—1.50 g/kg, but the distribution frequency in this range area in 2003 was 88.0%, higher than that in 1990 being 77.8%, the evolution trend of the content of N in orchard soil was similar with that in paddy soil. 4) The average total N content of farmland in investigated area was  $1.58 \pm 0.03$  g/kg in 2003, compared to that in 1990, increased by 3.3%. This indicated that the current fertilization and management increased the content of total N in farmland soils steadily in hilly red soil regions.

**Keywords:****引用本文:**刘守龙<sup>1,2</sup>; 黄道友<sup>2</sup>; 吴金水<sup>2</sup>; 黄敏<sup>1,2</sup>; 肖和艾<sup>2</sup>; 宋变兰<sup>2</sup>; 苏以荣<sup>2</sup>. 典型红壤丘陵区土壤氮素含量及其分布的演变规律[J] 植物营养与肥料学报, 2006, V12(1): 12-LIU Shou-long<sup>1,2</sup>; HUANG Dao-you<sup>2</sup>; WU Jin-shui<sup>2</sup>; HUANG Min<sup>1,2</sup>; XIAO He-ai<sup>2</sup>; SONG Bian-lan<sup>2</sup>; SU Yi-rong<sup>2</sup>. Evolution pattern of soil total N content and its distribution in typical hilly red soil regions[J] Acta Metallurgica Sinica, 2006, V12(1): 12-

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