

研究论文

海南东郊椰林生态系统土壤动物群落特征

唐本安¹, 唐敏², 陈春福¹, 邱彭华¹, 刘强³, 王敏英¹, 李翠娥¹

1.海南师范大学资源环境研究所, 海口 571158

2.海南师范大学生态研究所, 海口

3.中南大学, 长沙 4100782

收稿日期 2004-10-2 修回日期 2005-6-10 网络版发布日期: 2006-1-25

摘要 2002年7月~2004年7月, 对海南东郊椰林土壤动物进行了生态系统特征调查研究, 获得土壤动物标本共5378只。为了研究结果的信度, 选取1周年中的7月份(雨季)与1月份(旱季)捕量的4033只土壤动物作为研究对象, 其中湿生线虫类为1253只, 旱生土壤动物为2780只, 隶属4门12纲27个类(目)。经与我国不同纬度地带分布的土壤动物生态区系特征比较, 东郊椰林土壤动物具有较为明显的热带性土壤动物群落的特征。对照原始热带山地雨林土壤动物群落分析表明, 虽同属热带雨林环境, 东郊椰林土壤动物因受单一树种、面临季风海域地理位置、土壤质地(pH值与盐度偏高)、土壤湿度等生境因素的影响, 群落结构还具有种类并不很丰富, 优势度指数(C)偏高, 多样性指数(H')偏低热带雨林性土壤动物群落的分异特征。在进行椰林区异质小生境土壤动物分析中还发现, 院落周边椰林地因土壤动物丰富, 土壤生态系统良好, 椰树的年产量均高于其它异质的小生境椰林地, 说明在东郊椰林生态系统中, 土壤动物的丰度与椰树产量也呈现出较好的正相关性

关键词 [土壤动物](#); [生态特征](#); [土壤生态系统](#); [东郊椰林](#)

分类号 [Q145](#), [Q958](#), [S154.5](#)

Characteristics of soil fauna in the Dongjiao coco forest ecosystem in Hainan

TANG Ben-An¹, TAGN Mi n², CHEN Chun-Fu¹, QIU Peng-Hua¹, LIU Qi ang³, WANG M i n-Yi ng¹, LI Cui -E¹

1. Hainan Normal University Resources Environment Graduate school, Haikou 571158, China;

2. Hainan Normal University Ecology Graduate school, Haikou 571158, China;

3. Central South University, Changsha 410078, China

Abstract From July 2002 to July 2004, we investigated the soil fauna in the Dongjiao coco forest of Hainan Island. The objective of the project is to examine the soil usage and potential problems in the coco nut production, and provide scientific foundations for planning of coco nut production in Hainan from an ecological perspective.

The Dongjiao coco forest is located at the Dongjian Peninsula, eastern Wenchang. The peninsula has a flat topology with elevation below 10 meters. The area has a typical monsoon climate of tropical ocean in north edge, with major climatic parameters as the following: mean annual average temperature through 24.4°C; mean annual precipitation 1529.8mm; mean annual sunshine 2026 hours; Active accumulated temperature 8928°C/a, total annual solar radiation 482 kJ/(cm²•a); mean annual average relative humidity 85%~88%. The Soil is typical seashore sandy soil with high level of moisture (0~20cm relative soil moisture >21.9), and a pH of 6~7. The environmental conditions are considered as well suitable for coco tree and Syzygium jambos community. Si

扩展功能

本文信息

▶ [Supporting info](#)

▶ [\[PDF全文\]\(0KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

- [唐本安](#)
- [唐敏](#)
- [陈春福](#)
- [邱彭华](#)
- [刘强](#)
- [王敏英](#)
- [李翠娥](#)

nce the coco trees were first introduced to the area approximately 2000 years ago, the total gro
w area has increased to $2 \times 10^4 \text{hm}^2$, and the area has become the primary coco nut production ar
ea in China.

The sample sites were determined by the characteristic of the coco forest community. For large si
ze soil animal species, samples were collected from each $50 \times 50 \text{cm}^2$ sample sites; difference layer
s of soil were sorted and collected by hands. For medium and small size soil animal species, the T
ullgren methods and the Baermann method were used. A total of 5378 specimens were obtaine
d. To closely represent the community structure, a total of 4033 specimens, which collected in th
e dry season (Januray) and wet season (July), were identified and studies. Among them, there we
re 1253 Nematode and other moisture dependant species, and 2780 drought tolerant species. Th
ese species represented 4 phyla, 12 classes and 27 genera.

(1) All major animal groups presented in a tropical rain forest are present in the Dongjiao Coco w
oods soil community. The dominant groups included Acarina, Nematoda, Collembola, together th
ey account for 88.10% of total amount. Other groups, Hymenoptera (Antes), Isoptera (Termite
s), Enchytraeidae, and Symphyla, account for 8.67% of total amount. There were 20 rare group
s, which only account for 3.23% of total catch, but they represent a large number of species diver
sity. Therefore, these rare species may play an important role in the material and energy conversio
n process and is an important part of the community.

(2) The Dongjiao Coco woods demonstrated typical characteristics of tropical soil animal commu
nity. The number of species and the diversity index (H) increase from the high latitude areas towar
d the equator; The dominance index (C) decrease from the high latitude areas toward the equato
r; the ratio of Acarina /Collembola, the percentage value of Hymenoptera (Antes) along latitudina
l declination increment; a typical member-termite of tropical community, varies from absence t
o a dramatic increasement with the declination of latitude.

(3) Comparing to primary tropical rain forest, the Dongjian coco forest community is relatively lo
w in species diversity, and has a high dominance index and low diversity index. This may partiall
y due to some characters of the forest: singular tree species, monsoon climate, seashore locatio
n, high pH and salinity of the soil, high soil moisture and other environmental factors. Seasonal cha
nge of community structure occurs but is not obvious.

(4) The Dongjiao coco forest communitys display heterogeneity among various microhabitats. Soi
l around human residence has a higher organic material content, and has higher counts of numbe
r of specimens and number of species, comparing to other three sampling sites.

(5) The coco nuts production at the location around human residence is higher than other microha
bitat. The high production is positively correlated with the richness of animal community in the soil.

Key words [soil](#) [animal](#) [ecosystem](#) [characteristic](#) [ecosystem](#) [system](#) [of](#) [soil](#) [Dongjiao](#) [Doco](#) [wood](#) [of](#) [Hainan](#)

DOI