国产青冈属的数量分类学研究

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摘　要：观测了中国青冈属(*Cyclobalanopsis* Oersted)77 个种近千份标本,选取包括叶柄、小枝、叶片、毛被、裂齿、坚果、壳斗等 70 个特征,应用因子分析和聚类分析的方法研究青冈属属下分类。因子分析借助主成分分析方法,从 70 个原始性状变量中筛选归纳出 5 个关键形态因子 14 个变量,并以此作为聚类分析的新变量,选取欧式距离系数和非加权平均数法(UPGMA)进行聚类。聚类分析和主成分分析的结果将国产青冈属划分为 2 个组 5 个亚组,与以前的形态分类吻合。因子分析结果表明:叶型、环带裂齿、壳斗毛被等性状对青冈属分类具有较重要的意义。还对青冈属 2 个大组和 5 个亚组之间的关系进行了探讨,并对用于分类的特征因子的可靠性进行了讨论。对青冈属一些有争议或存疑的种或变种(如青冈、龙迈青冈、长叶粉背青冈、黄枝青冈和滇青冈等)的关系也进行了讨论。

关键词：青冈属；数量分类学；性状；聚类分析；主成分分析；因子分析

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A Numerical Taxonomic Study of the Genus *Cyclobalanopsis* Oersted from China

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Abstract：Based on 70 characters concerning aspects of leaf, petiole length, hairs, lateral veins and acorn of cupule from 1000 specimens of 77 taxa within the genus *Cyclobalanopsis* Oersted from China, a numerical taxonomy is presented by using the cluster analysis, principal components analysis (PCA) and factor analysis. 14 of 70 characters were screened by means of PCA and used for cluster analysis. The results showed that the genus could be divided into two sections and five subsections. The factor analysis indicated that the leaf shape, teeth ring and hairy cupule etc. were of significance for *Cyclobalanopsis* classification. According to the results of numerical taxonomy, the entity of some doubtful taxa such as *C. glauca*(Thunb.) Oerst., *C. lungmaiensis* Hu, *C. glaucoides* Schott, *C. fulviseriaca* Y. C. Hsu et D. M. Wang, *C. pseudoglauca* Y. K. Li et X. M. Wang was re-examined, and the relationships of the two sections, and those of five subsections were discussed. The taxonomic reliability based only on the morphometric characters as well as the numerical methods were also reviewed.

Key words：*Cyclobalanopsis* Oersted；Numerical taxonomy；Characters；Cluster analysis；Principal components analysis；Factor analysis

山毛榉科青冈属(*Cyclobalanopsis* Oersted)有 150 种,主要分布在亚洲热带、亚热带地区。我国有 77 种及 3 变种,主要分布在秦岭、淮河流域以南各省区[1,2]。由于青冈属种类繁多,类群间重要分类形态性状上存在重叠,镶嵌,故其分类相当困难和混乱[3-6]。国内外学者对其系统分类研究积累较少,没有完整、系统的属下分类阶元,分组性状的采用意见也不一致[3,4,7-11]。该属多个种界限模糊,难以划分[12,13]。近年来,我们对国产山毛榉科做了较系统的研究。本文是该综合研究中有关青冈属的内容。作者试图基于形态特征,借助于数量分类技术来解决青冈属属下分类的有关问题。

1　材料和方法

1.1　材料

以《中国植物志》收录的中国青冈属77种作