

# A new distribution record of *Quercus acuta* Thunberg in HongKong and Guangdong Province

DENG Min<sup>1</sup>, CAO Li-Min<sup>2,3</sup>\*, CAO Ming<sup>3</sup>\*

( 1. Key Laboratory of Biodiversity and Biogeography, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming 650204, China; 2. College of Chemistry and Life Science, Gannan Normal University of Jiangxi, Ganzhou 341000, China; 3. Guangxi Institute of Botany, Guangxi Zhuang Autonomous Region and Chinese Academy of Sciences, Guilin 541006, China )

**Abstract:** Based on a specimen survey of *Quercus* subg. *Cyclobalanopsis* in the main herbaria of China, this paper confirmed the distribution of *Quercus acuta* Thunberg in HongKong and Guangdong Province. The diagnostic characteristics of this species and its affinities are given and discussed.

**Key words:** *Quercus acuta*; distribution; taxonomy

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## 1 Introduction

*Quercus acuta* Thunberg is native to southern Korea and Japan (Ohashi *et al.*, 2006a; Ohashi *et al.*, 2006b). Other floristic works record its distribution in East China and Taiwan (Camus, 1934—1954; Menitsky, 1984; Frodin & Govaerts, 1998; Ohba, 2006). In contrast, in the latest local floristic works of mainland China and Taiwan, *Q. acuta* is absent (Hsu *et al.*, 1985; Liao, 1996; Huang *et al.*, 1999). Ohashi *et al.* (2006a) concluded that records of *Q. acuta* in China and Taiwan were based on misidentifications. But remarkably, Ohashi *et al.* (2006b) excluded one specimen (Konishi 17) collected from Taiwan, which differed only slightly from *Q. acuta* in the number and prominence of the secondary veins, without mentioning which species this specimen should be attributed to. Also their survey only covered specimens in Japanese herbaria, without other records from the main herbaria in China or Taiwan. Therefore, their conclusion is not totally convincing. The puzzle on the distribution re-

ords of *Q. acuta* from China is still not well resolved and the diagnostic features of *Q. acuta* and its affinities seem ambiguous.

The goal of this paper, based on a comprehensive survey of specimens in the main herbaria, is to clarify the distribution records of *Q. acuta* in China and to explore more comparatively stable diagnostic features for the taxonomy of *Q. acuta* and its affinities.

## 2 Method and Results

Specimens housed in the main herbaria of China (PE, KUN, IBSC, IBK, BFC, SZ, SYS, SFC) were examined. The results showed that the most specimens of *Quercus acuta* were collected from Japan, but also that four specimens collected from HongKong and Guangdong should be attributed to *Q. acuta* (Fig. 1).

*Q. acuta* Thunberg in A. Murray, Syst. Veg. ed. 14: 858 (1784). — *Cyclobalanopsis acuta* (Thunberg) Oersted, Vidensk. Meddel. Naturhist. Foren. Kjøbenhavn 18:8 (1866).

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作者简介: 邓敏(1977-),女,云南昆明,博士,植物经典分类、植物区系地理与系统演化、植物群体遗传结构、植物资源开发与利用。

\* 通讯作者(Author for correspondence, E-mail: caoming135@126.com)

### 3 Distribution

China

Guangdong: W. Y. Chun 107591 (PE).

HongKong: Botanic Garden of HongKong, 1 July 1935, W. Y. Chen 10232, 10232A (PE).

Japan.

Ake-gaahi: tokano, tosa, 1 Sept. 1894, Anonymous s. n. (PE); Hondo: Prov. Hitati, Mt. Takaba, 26 May 1934, F. Mackawa 7816 (PE); Honshu: Pref. Shiga: Suzumitoge in Mt. Hira, Shiga-cho, Shiga-gun, alt. 500 m, 24 July 1973, G. Murata & H. Nishimura s. n. (PE); Pref. Hyogo: near the summit of Mt. Mino-san, Aioi Shi. In dense evergreen forest, alt. ca. 470 m, N. Fukuoka et al. 837, 1176, 1271 (PE); Pref. Osaka: honzanji, Takatsuki-shi. alt. ca. 500 m, 28 May 1968, M. Hotta 1234 (PE).

Kyoto: Anonymous no. 46, 500 (SZ)

Kyushu: Miyazaki Pref, J. Murata 9758 (KUN, PE, SZ).

Rikuzen: Sendai-city, on the temple Zuifo-ji, 18 Feb. 1977, M. Takahashi & M. Sat 8 (PE); Tokyo: Cultivated, Leg. Kuenburg 191 (PE); F. N. 10346 (PE).

### 4 Discussion and Conclusion

The specimens collected from Guangdong and Hongkong (W. Y. Chun 107591 and W. Y. Chen 10232, 10232A) were firstly examined by Dr. Chun W. Y. with a determinate label as "*Quercus hongkongensis*, n. sp". Metcalf (1942) cited these specimens as "*Quercus* sp. nov." in Fl. Fukien which indicated that he thought these specimens were belonging to a new species, but no any valid names were published based on these specimens. According to our research, we conclude these specimens should be attributed to *Q. acuta* Thunberg.

The related species *Q. acuta* Thunberg, *Q. nubium* Hand. -Mazz. (now *Q. sessilifolia* Blume) and *Q. morii* Hayata were grouped into "Series Acuta" (Camus, 1934-1954), "Group Acuta" (Barnett, 1944), "Section

*Acuta*" (Menitsky, 1984) or "Subsection Acuta" (Deng, 2007) by uniform features of the deeply cup-shaped cupule with dense gray or yellowish pubescence on the outside of the cupule wall, which covers half of the ovoid acorn, the prominent convex style base (Barnett, 1944; Camus, 1934—1954) and the scattered simple stellate and two-armed hairs, but without any glandular trichomes on the lower leaf lamina (Menitsky, 1984; Deng, 2007). The grouping of *Q. acuta* and *Q. sessilifolia* as a clade is also supported by 96 bootstrap value of the latest ITS based molecular phylogeny of *Quercus* subgenus *Cyclobalanopsis* (Deng, 2007). Meanwhile, a series of differences exists and can serve as diagnostic features for these three species.

The leaf blades of *Q. acuta* and *Q. morii* are oblong to ovate with a primary vein, regular secondary veins and reticulate on the abaxial surface. Both species have a long petiole (2.0—3.1 cm). All of these characteristics are different to the oblong-elliptic to lanceolate-elliptic leaves with inconspicuous secondary veins and distinct recurved margin in *Q. sessilifolia*. The entire or undulate distal half of the leaf margin of *Q. acuta* is different from the margin of *Q. morii*, which is serrated in the middle and distal portions.

#### Key to the species in sect. *Acuta* (Camus) Menitski

1. Leaf oblong-elliptic to lanceolate-elliptic, secondary vein slender, irregular and inconspicuous on both sides, leaf margin obviously recurved, petiole 0.5—0.8 cm ..... *Q. sessilifolia* Blume
1. Leaf oblong to ovate, the regular secondary vein obviously convex on the abaxial side, leaf margin flat, petiole more than 1.5—2.5(3) cm ..... 2
  2. Leaf margin entire or undulate in distal half, acorn elongate-ovate ..... *Q. acuta* Thunberg
  2. Leaf margin serrate in distal half ..... *Q. morii* Hayata

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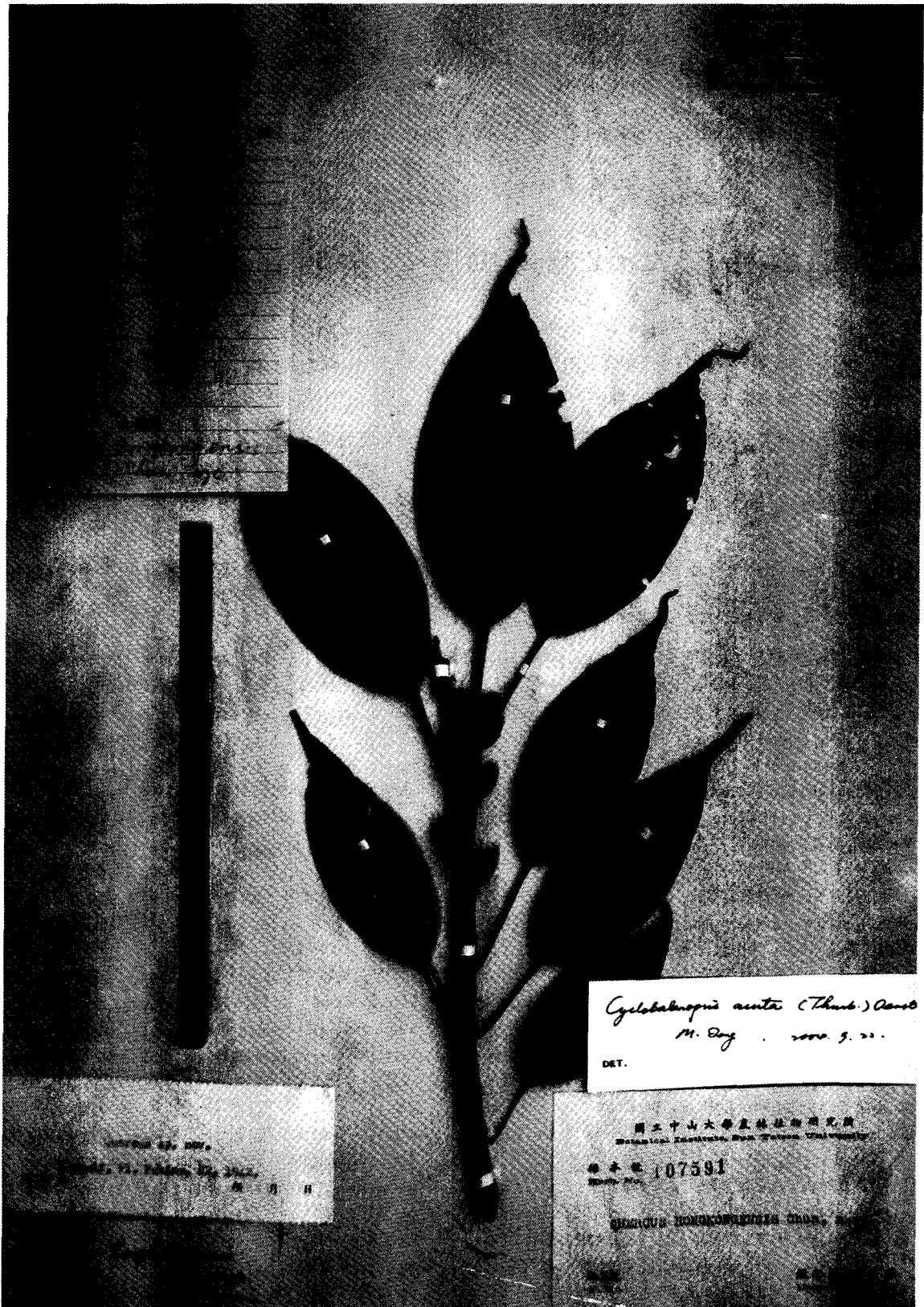


Plate I Specimen of *Quercus acuta* Thunberg (W. Y. Chun 107591), collected from Guangdong Province.

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# 尖叶青冈在中国香港及广东的新分布记录

邓 敏<sup>1</sup>, 曹利民<sup>2</sup>, 曹 明<sup>3\*</sup>

(1. 中国科学院 昆明植物研究所 生物多样性生物地理重点实验室, 昆明 650204; 2. 江西赣南师范学院 化学与生命科学学院, 江西 赣州 341000; 3. 广西壮族自治区 广西植物研究所, 广西 桂林 541006 中国科学院)

摘 要: 基于对中国主要标本馆的青冈亚属标本的全面整理, 该研究证实尖叶青冈(*Quercus acuta* Thunberg)在中国香港及广东省有分布, 并且本文对尖叶青冈及其近缘种鉴别特征进行了讨论和界定。

关键词: 尖叶青冈; 新分布; 分类

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(上接第 836 页 Continue from page 836)

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