**Curcuma nankunshanensis** (Zingiberaceae), A New Species from China

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**Abstract:** A new species of *Curcuma* L., *C. nankunshanensis* N. Liu, X. B. Ye & J. Chen, is described and illustrated. The new species is similar to *C. kwangsiensis* X. X. Chen, but differs in its lateral rhizome multibranched, leaf blades broad-lanceolate and glabrous adaxially, coma bracts white except for purplish toward the apex and fertile bracts green. It is also easily distinguished from *C. aromatica* by its rhizome white inside, coma bracts white except for purplish toward the apex, seeds bearing. A key to *Curcuma* from Guangdong is provided.

**Key words:** *Curcuma; Curcuma nankunshanensis*; Zingiberaceae; Guangdong; China; New species

The genus *Curcuma* L. (Zingiberaceae) contains many taxa of economic, medicinal, ornamental and cultural importance. It is distributed in S and SE Asia with a few species extending to China, Australia and the South Pacific, and some economic species worldwide introduced into the tropics\(^1\). The genus is characterized by the primary bracts united laterally forming pouches and by the versatile anther\(^2\). The lack of a comprehensive taxonomic revision makes little consensus on the number of species but recently estimates varies from about 50\(^2\) to 80\(^3\) or 100\(^4\). Moreover, high intra- and inter-population variation has led to debate on species concepts and boundaries\(^1\).

Many taxonomists were attempted to establish the natural systems for the genus. Roxburgh\(^5\) divided the genus into two unnamed sections based on the characters of lateral or central spikes. While Baker\(^6\) separated it into three sections, i.e. Sect. *Exantha* (spikes vernal, always lateral), Sect. *Mesantha* (spikes autumnal, terminal, bracts not recurved at the tip) and Sect. *Hitcheniopsis* (spikes autumnal, terminal, bracts very obtuse and spreading at the tip). Schumann\(^7\) divided the genus into two subgenera, i.e. subgen. *Eucurcuma* K. Schum. (= subgen. *Curcuma*) and subgen. *Hitcheniopsis* (Bak.) K. Schum., based on the presence or absence of the anther spur. Schuman
system was accepted by many authors\cite{2,8-11}.

In China there are twelve species of Curcuma, mostly occurring in its southwest\cite{12}. Among of them, only one species, \textit{C. kwangsiensis} S. G. Lee et C. F. Liang, has both lateral and central spikes. And most of them can’t produce seeds except for \textit{C. kwangsiensis} and \textit{C. exigua} N. Liu.\cite{12} Five species have been recorded from Guangdong Province: \textit{C. kwangsiensis}, \textit{C. aromatic}, \textit{C. phaeocaulis}, \textit{C. longa} and \textit{C. wenyujin}\cite{13}. On the expedition to Nankun Shan, Guangdong in 2003 and 2004, a plant of \textit{Curcuma} which is similar to \textit{C. kwangsiensis} in having both central and lateral spikes and bearing the seeds, attracted our attention. Further studies confirmed that it presents a new species described and illustrated bellow.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{curcuma_nankunshanensis.png}
\caption{\textit{Curcuma nankunshanensis} N. Liu, X. B. Ye & J. Chen}
\end{figure}

Curcuma nankunshanensis N. Liu, X. B. Ye & J. Chen, sp. nov.  Fig. 1, Plate 1.

Species C. kwangsiensis S. G. Lee et C. F. Liang similis, sed rhizomatibus lateralibus evolutis, laminis supra subglabris differt. Species C. aromaticae Salisb. subsimilis, sed rhizomatibus intus griseis, vaginis badiris, bracteis superjectis purpureo-rubris, seminibus produceuti differt.

Perennial herbs, 80~120 cm tall. Rhizomes obconical, 6~10 cm × 4~6 cm, multibranched, white or pale creamy inside; lateral rhizomes well-developed, 1~2 cm in diam, flesh, grayish white inside; roots bearing tubers, slender, white inside. Leaf clumps sparsely. Leaves 3~7; sheath brown; petiole 10~28 cm; ligule conspicuous, ca. 2 mm broad, pubescent; blade broad-lanceolate to lanceolate, 55~79 cm × 7.5~15 cm, base cuneate, apex shortly caudate, adaxially green with faint purple stripes when fresh, then disappearing, glabrous, abaxially densely pubescent. Spikes 14~18 cm × ca. 8 cm, terminal on pseudo-stems or lateral on separate shoots arising from rhizomes, 4~6-flowered; peduncle ca. 15 cm long. Coma bracts white except for purple toward the apex, elliptic to oblone-lanceolate, 5~6 cm × 3~4 cm, pilose, apex mucronate; fertile bracts green, ovate-lanceolate, ca. 4.5 cm × 3.5 cm, connate to 1/3 above the base, pilose. Bracteoles white, elliptic, ca. 2.6 cm × 0.8 cm. Calyx tubular, white, ca. 1.5 cm, apex 3-toothed, pilose. Corolla tube ca. 2 cm, yellow, densely villous on throat; lobes 3, purple, glabrous; lateral ones elliptic, ca. 1.9 cm × 0.5 cm, posterior one larger, cucullate, apex mucronate, beak-like. Lateral staminodes yellow, obovate, ca. 1.5 cm × 0.5 cm, glabrous. Labellum yellow, suborbicular, ca. 1.7 cm long, 2-cleft at apex, glabrous. Filaments broad, flat; anther linear, white, ca. 4 mm long, pubescent, base spurred. Ovary villous. Capsule subglobe; seeds small, aril laciniate. 2n = 84. Flowering: Apr. ~ Jun. & Aug. ~ Sep.; fruiting: Jul. & Oct.

China. Guangdong: Longmen Xian, Nankun Shan, alt. 500 m, 2006~09~05, LIU Nian et YE Xiang-bin 20060905002 (holotypus, IBSC); Guangzhou, South China Botanical Garden, introduced from Nankun Shan, 2008~05~27, CHEN Juan 0815 (IBSC).

Etymology: The species is named after its type locality, Nankun Shan, Longmen Xian, Guangdong, China.

Curcuma nankunshanensis is similar to C. kwangsiensis, but differs in its multibranched lateral rhizome, leaf blades broad-lanceolate and glabrous adaxially, coma bracts white except for purple toward the apex and fertile bracts green. It is also easily distinguished from C. aromaticae by rhizome white inside, coma bracts white except for purple toward the apex, seeds bearing (Table 1). The key to Curcuma from Guangdong is provided below.

<table>
<thead>
<tr>
<th>Character</th>
<th>C. nankunshanensis</th>
<th>C. kwangsiensis</th>
<th>C. aromaticae</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant height (cm)</td>
<td>0.8~1.2</td>
<td>0.3~0.5 m</td>
<td>1</td>
</tr>
<tr>
<td>Main rhizome</td>
<td>Multibranched</td>
<td>Unbranched</td>
<td>Multibranched</td>
</tr>
<tr>
<td>Main rhizome size (cm)</td>
<td>6<del>10 × 4</del>6</td>
<td>4<del>5 × 2.5</del>3.5</td>
<td>7<del>11 × 5</del>7</td>
</tr>
<tr>
<td>Color of main rhizome</td>
<td>White or pale creamy inside</td>
<td>White or pale creamy inside</td>
<td>Yellow inside</td>
</tr>
<tr>
<td>Leaf clumps</td>
<td>Sparsely</td>
<td>Densely</td>
<td>Sparsely</td>
</tr>
<tr>
<td>Leaf shape</td>
<td>Broad-lanceolate</td>
<td>Narrow-lanceolate</td>
<td>Elliptic</td>
</tr>
<tr>
<td>Colour of leaf blades</td>
<td>Green with faint purple stripes abaxially when fresh, then disappearing</td>
<td>Green or green with purple permanently</td>
<td>Green</td>
</tr>
<tr>
<td>Ratio of leaf length/width</td>
<td>7.2</td>
<td>4.2</td>
<td>3.0</td>
</tr>
<tr>
<td>Indumentum of leaves</td>
<td>Adaxially glabrescent, abaxially pubescent</td>
<td>Densely pubescent on both surfaces</td>
<td>Adaxially glabrescent, abaxially pubescent</td>
</tr>
<tr>
<td>Coma bract size (cm)</td>
<td>5<del>6 × 3</del>4</td>
<td>3.5<del>4 × 2</del>2.5</td>
<td>5.5<del>6.5 × 3</del>4</td>
</tr>
<tr>
<td>Color of coma bract</td>
<td>White except for purple toward the apex</td>
<td>Purple-red</td>
<td>Purple-red</td>
</tr>
<tr>
<td>Seed</td>
<td>Present</td>
<td>Present</td>
<td>Absent</td>
</tr>
</tbody>
</table>
Key to *Curcuma* from Guangdong

1. Leaf sheath base pale brown; seeds bearing.
   2. Rhizomes multibranched; leaf clumps densely; leaf blades narrow-lanceolate, densely pubescent on both surfaces. ................................................................. *C. kwangsiensis*
   3. Rhizomes unbranched; leaf clumps sparsely; leaf blade broad-lanceolate, adaxially glabrous, abaxially densely pubescent. ......................................................... *C. nankunshanensis*

1. Leaf sheath brown or green; seed not bearing.
   3. Leaf sheath brown; leaf blade with purple cloud at center. ......................................................... *C. phaeocaulis*
   3. Leaf sheath green; leaf blade without purple cloud at center.
   4. Leaf blades abaxially densely pubescent. .................................................................................. *C. aromatica*
   4. Leaf blades glabrous on both surfaces.
   5. Rhizomes pale creamy inside; inflorescences on separate shoots arising from rhizomes. ................................................................. *C. wenyujin*
   5. Rhizomes orange and bright yellow inside; inflorescences terminal on pseudostems. ......................... *C. longa*

**Acknowledgements** We are grateful to Mrs Liu Yun-xiao (IBSC) for preparing the illustration.

**References**


**Explanation of plate**

**Plate I**

A. Inflorescence on separate shoots; B. Rhizomes; C. Inflorescence terminal on pseudostems; D. Bracteole and corolla; E. Bracteole, lateral staminodes, labelllum, anther; F. Seeds.