• 中文名稱：	牛樟
• 英文名稱：	Stout Camphor Tree
• 學名：	*Cinnamomum kanehirai* Hayata *Cinnamomum micranthum* (Hayata) Hayata f. kanehirae (Hayata) Ying *Cinnamomum micranthum* (Hayata) Hayata *forma kanahirai* (Hayata) Ying
• 科名：	樟科(Lauraceae)樟屬(Cinnamomum)

• 別名：	牛樟，樟牛、冇樟(臺灣)，沈水樟(廣東新豐)，水樟、臭樟(廣東始興)，黃樟樹(江西)
	• **Common Names (別名):**
	  ○ **Stout Camphor (牛樟):** Its most famous name. "Niu" (Cow/Stout) refers to its massive, sturdy stature.
	  ○ **Zhang Niu (樟牛):** A variation of its primary name.
	  ○ **Mao Zhang (冇樟):** A local Taiwanese name.
	  ○ **Water Camphor / Smelly Camphor (水樟、臭樟):** Regional names in Guangdong, China.
	  ○ **Yellow Camphor (黃樟樹):** Commonly used in Jiangxi, China.

• 原產地：	中國大陸南部及臺灣。**Origin (原產地):** Southern Mainland China and **Taiwan**.
• 分布：	分布於臺灣中、低海拔山地，最高可達 1,700 公尺處叢林內或開闊地。 • **Habitat:** Found in mid-to-low altitude mountain regions across Taiwan. • **Altitude Range:** Grows in forests or open lands from the foothills up to **1,700 meters** above sea level. • **Ecological Status:** While it shares some traits with the common Camphor tree, the Stout Camphor is much rarer and is now a **protected species** in Taiwan due to historical over-harvesting.
• 用途：	1.建築、傢俱、雕刻用材：木材具有芳香，邊材淡黃褐色，心材暗紅褐色，質略柔軟，為著名的建築、傢俱及雕刻工藝用材。牛樟木材富含松油醇，不易腐朽、蟲蛀，材質細緻、紋理

交錯，且鉋削加工容易，也漸成高價值的家具及木刻藝品用材。2.提煉牛樟油：牛樟的枝葉可提煉牛樟油。3.牛樟芝產業的發展應用：牛樟芝是長在牛樟上的一種真菌，也屬於台灣特有種，有研究顯示牛樟芝當中有三萜類的化合物，學術界普遍認為此化合物能抑制癌細胞，因為牛樟芝通常是長在中空樹幹的內面，所以這些年歲已久的牛樟老樹被砍伐大多不是為了使用木材，而是為了採擷樹幹內部的菇，造成牛樟砍伐的問題日益嚴重。

1. Construction, Furniture, and Carving (建築、傢俱、雕刻):

- **Characteristics:** The wood is famous for its **aromatic scent**. The sapwood (outer layer) is pale yellowish-brown, while the heartwood (inner core) is a deep reddish-brown.
- **Durability:** It is rich in **terpineol**, making it naturally resistant to decay and wood-boring insects.
- **Workability:** The wood texture is fine with interlocked grains, yet it is relatively soft and easy to plane or carve. This makes it a top-tier material for high-end furniture and intricate religious or artistic carvings.

2. Extraction of Stout Camphor Oil (提煉牛樟油):

- The branches and leaves can be processed to extract **Stout Camphor Oil**, which is used in traditional remedies and fragrances.

3. Development of the Antrodia (Niu-Chang-Chih) Industry (牛樟芝產業):

- **The Symbiosis:** *Antrodia cinnamomea* (牛樟芝) is a medicinal fungus that grows **only** on the Stout Camphor tree and is endemic to Taiwan.
- **Medical Value:** Research indicates that this fungus contains **triterpenoids**, compounds widely believed in the academic community to help inhibit cancer cells.
- **Conservation Crisis:** Because these mushrooms typically grow on the **inner walls of hollow, ancient trunks**, many old-growth trees have been illegally felled. The goal is often not the timber itself, but the "forest ruby" (the fungus) hidden inside, leading to severe deforestation and protection challenges.

• 莖：

大喬木，樹高可達 30 公尺，徑 30~60 公分或更粗，樹皮茶褐色，粗糙，常有縱裂；小枝條帶黃綠色，製成標本時則多呈黑色。

- **Size:** A **large evergreen tree** (大喬木) that can reach heights of up to **30 meters**.

- **Diameter:** Typically **30–60 cm**, but ancient specimens in Taiwan's protected forests can grow much thicker, sometimes several meters in diameter.
- **Bark:**
    - **Color:** A distinct **tea-brown** (茶褐色).
    - **Texture:** The surface is **rough** and frequently marked with **deep vertical fissures** (縱裂). This "rugged" look is a classic sign of an aging Stout Camphor.
- **Twigs & Branches:**
    - Fresh, young branchlets are a **yellowish-green** color.
    - **Scientific Note:** Interestingly, when these branches are dried to make botanical specimens, they almost always turn **black**.

• 葉：

葉芽球形，先端鈍，外面有短柔毛，邊緣有毛茸；葉卵形、長橢圓形、闊橢圓形或倒卵形，長 9~11 公分，寬 4~5 公分，先端銳尖或短尾狀，基部銳尖，革質，全緣，表面光滑有光澤，背面顏色較淡，不明顯三出脈，葉脈腋常具有叢毛；中肋及側脈多少於表裏兩面皆隆起；葉柄細長，長 0.8~1.2 公分，光滑無毛。

- **Buds (葉芽):** The leaf buds are **globular (ball-shaped)** with a blunt tip. The outside is covered in short, soft downy hairs, and the edges are fringed with fine hairs.
- **Shape:** The leaves can vary from **ovate** (egg-shaped) and **oblong** to **broadly elliptic** or even **obovate** (teardrop-shaped).
- **Size:** They are quite large, typically **9–11 cm long** and 4–5 cm wide.
- **Texture & Appearance:**
    - **Leathery (革質):** They feel thick and sturdy.
    - **Glossy:** The top surface is smooth and very shiny, while the underside is a paler green.
    - **Margins: Entire** (smooth edges).
- **Venation (The "Vein" Secret):**
    - They feature **indistinct triple-veins (不明顯三出脈)**. Unlike the Common Camphor, where the three main veins are very deep and obvious, the Stout Camphor's veins

	are more subtle. ○ **Tufted Hairs:** There are often tiny "tufts" of hair located in the **axils** (the armpits where the side veins meet the midrib). ○ The midrib and lateral veins are slightly raised on both the top and bottom surfaces. • **Petiole (Leaf Stem):** Slender and smooth, about 0.8–1.2 cm long.
• 花：	花多數，有香味，花苞徑 0.2~0.3 公分，呈頂生及腋生的聚繖花序排列，有時亦有呈圓錐花序狀，花冠約 0.5~0.6 公分；幼時剛長出來時有苞片包被，苞片上具有毛茸；花被筒鐘形，花被片 6 片，近似相等，長橢圓形，長 0.2~0.25 公分，外面平滑，裏面側有毛茸，完全雄蕊 9 枚，第一、二輪花絲長 0.15 公分，無腺體，基部有絨毛；第三輪花絲有腺體，基部有絨毛，腺體近似無柄；退化雄蕊箭形，柄有絨毛，第一、二輪花藥內向；第三輪花藥外向。 • **Inflorescence (Arrangement):** ○ The flowers grow in **cymes** (聚繖花序) at the tips of branches (**terminal**) or in the leaf axils (**axillary**). ○ Sometimes these clusters group together to form **panicles** (圓錐花序). • **Size & Scent:** The flowers are numerous and **fragrant**. The buds are tiny (0.2–0.3 cm), and the fully opened corolla is only **0.5–0.6 cm** wide. • **Protection:** Young buds are protected by **bracts** (苞片) covered in fine hairs. • **Structure:** ○ **Perianth (Petals/Sepals):** The tube is bell-shaped with **6 lobes** (segments) that are roughly equal in size, oblong, and smooth on the outside but **hairy on the inside**. ○ **The 9 Stamens (雄蕊):** This is the "engine room" of the flower, arranged in three specific "ranks" or circles (whorls): ▪ **Whorls 1 & 2:** Have no glands at the base. The anthers face **inward** (introrse). ▪ **Whorl 3:** These stamens have **glands** at their base. The anthers face **outward** (extrorse). ○ **Staminodes (退化雄蕊):** There is a fourth circle of "sterile" stamens that are **arrow-shaped** (箭形) with hairy stalks.

• 果實：

果實壓縮狀球形，長 1~1.2 公分，徑約 1.2 公分；基部有鐘形花被襯托。

- **Shape:** Compressed-globose (depressed-spherical), roughly **1–1.2 cm** long and **1.2 cm** in diameter.
- **Appearance:** The base is cupped by a persistent, **bell-shaped perianth** (the remains of the flower), making it look like a tiny, round acorn sitting in a cup.

• 特性：

牛樟為臺灣原生特有樹種，因為樹形粗狀堅實，所以被稱為「牛」樟。牛樟種子繁殖困難，林試所十數年前即開始研究其無性繁殖，但因為技術及設備的不足，使發根率困難的情況一直無法突破。但是現在，由於掌握了牛樟扦插繁殖技術中最重要的一環，即植物生理學上所謂「幼年化」的理論，牛樟苗木已能量產。牛樟之花屬黏質蟲媒花，母樹間受粉困難，又多開於樹冠頂端，易遭風害，偶有種子亦未成熟前即遭鳥、獸食害，因此採種極為困難。在自然狀態下，也很少有天然更新叢生，偶有天然下種，也因林下光度不足、種子又因枯枝落葉過厚而不易著床發芽等原因，多致失敗，我們很不容易在林下找到牛樟小苗的原因便在於此。

- **The "Ox" Name:** An endemic species native to Taiwan. It is called the **"Ox" (Niu) Camphor** because its trunk is exceptionally **thick, sturdy, and robust**, resembling the strength of an ox.
- **Propagation Challenges:**
    - Reproducing the tree from seeds is extremely difficult.
    - The Taiwan Forestry Research Institute (TFRI) began researching **asexual (vegetative) propagation** decades ago. However, due to early technical and equipment limitations, they struggled for years to get cuttings to take root.
- **The Scientific Breakthrough:**
    - Success was finally achieved by mastering the **Theory of Juvenility (幼年化)** in plant physiology. By using younger, "juvenile" tissues for cuttings, the rooting rate improved significantly, allowing for the **mass production** of Stout Camphor saplings.
- **Pollination and Seed Collection Difficulties:**
    - The flowers produce **sticky nectar** and are pollinated by insects. However, because individual "mother trees" are often spaced far apart, cross-pollination is difficult.

- Flowers bloom at the **very top of the canopy**, making them vulnerable to wind damage.
- Seeds are often eaten by birds or animals before they even mature.

- **Failure of Natural Regeneration:**
  - It is very rare to find "natural clusters" of young Stout Camphor in the wild. Even if seeds fall, they often fail to sprout because the forest floor is **too dark** or the layer of fallen leaves and debris is **too thick** for the seeds to reach the soil and take root. This is why finding a wild Stout Camphor sapling is such a rare event.