本圖鑑之植物顏色的識別、測量與記錄方法

Methods for Identifying, Measuring, and Recording Plant Colours in This Illustrated Book

植物世界的顏色繽紛多彩，每種植物的顏色都非常獨特，顏色因而成為植物鑒別時不可忽略的重要一環。為確保植物顏色描述的準確性、顏色重現性與國際間的可比性，本圖鑑採用英國皇家園藝學會(RHS)色卡作為色彩參照。新鮮植物標本的顏色均運用了RHS色卡，於自然光下進行測量與記錄，將視覺色彩轉化為最接近的RHS色卡編號，並運用分光光度計測量出相應的16進位(Hex)色碼，以便獲得較常用的顏色代碼，供讀者參考，並為植物的顏色鑒別特徵提供重要的科學依據。

The plant world is full of vibrant and diverse colours, and each species usually has its own distinct colour combination, making this an indispensable element in plant identification. To ensure accuracy, reproducibility and international comparability in colour descriptions, this illustrated book adopts the Royal Horticultural Society (RHS) Colour Chart as the standard reference. The colours of fresh plant specimens are recorded using the RHS Colour Chart, with measurements taken under natural light. This method converts visual colour impressions into the closest corresponding RHS colour code. A spectrophotometer is also used to measure the corresponding hexadecimal (Hex) colour codes, providing commonly used digital colour values for readers' reference, and offering an important scientific evidence for documenting plant colour information.

RHS色卡

由英國皇家園藝學會(RHS)所推出的色卡為國際慣用的標準參考，用作記錄植物顏色。第六版色卡內共有920種顏色，能更精確的描述及記錄植物顏色，特別是花的顏色。

The RHS Colour Chart

The RHS Colour Chart is an international standard reference published by the Royal Horticultural Society (RHS) and is used for recording plant colours. The 6th edition contains a total of 920 colours, making it possible to more precisely describe and document plant colours, especially the colour of flowers.

RHS顏色名稱

根據RHS色卡，其顏色名稱取自R D Huse和K L Kelly於1984年出版的*A Contribution Toward the Standardization of Color Names in Horticulture*，並經其編者Donald H Voss與American Rhododendron Society (ARS)的授權使用。讀者可參考RHS顏色名稱以初步了解植物顏色。但需注意，部分近似的顏色會共用相同的RHS顏色名稱，唯有RHS色卡編號，才是顏色獨特的識別碼。

RHS Colour Names

According to the RHS Colour Chart Guide, colour names are derived from *A Contribution Toward the Standardization of Color Names in Horticulture,* published in 1984 by R D Huse and K L Kelly, with permission from the editor Donald H Voss and the American Rhododendron Society (ARS). Readers may refer to RHS colour names as a first step to understanding the colours of a plant. However, some similar colours may share the same RHS colour name; only the RHS colour code serves as the unique identifier.

例子：使用 RHS 色卡測量半邊蓮的顏色
Example: Using the RHS Colour Chart to measure the colour of *Lobelia chinensis* Lour.

Nix Spectro 2 分光光度計（2毫米）

本圖鑑所採用的便攜式色彩測量工具，可將小至3毫米直徑的位置的顏色數據化，以做更準確的記錄及事後重現。

The Nix Spectro 2 Spectrophotometer (2 mm)

This device, a portable colour measurement tool that can measure the colour of an area as small as 3 mm in diameter, was used in the preparation of this illustrated book to enable more accurate documentation and later reproduction of plant species.

Hex色碼

16進位（Hex）色碼是一種世界通用的色彩代碼，常用於網頁開發與數位設計中。其格式「#RRGGBB」分別表示了紅（R）、綠（G）、藍（B）光的強度，可描述超過1,600萬種顏色，涵蓋了大部分可見光色彩。即使在不同瀏覽器、作業系統與各種裝置上，亦可重現Hex色碼的顏色，有一定的參考價值。

RHS色碼雖然是專為植物色彩測量而設計，能更精準定義植物顏色，但其實體色卡並非隨手可得。RHS色碼與Hex色碼相輔相成，提供一個既可靠又廣泛支援的色彩交流工具，協助重現植物的真實色彩。

Hex Colour Code

The hexadecimal (Hex) colour code is a universal colour code, especially in web development and digital design. Written in the format '#RRGGBB', it represents the intensity of red (R), green (G), and blue (B) light respectively, describing more than 16 million colours which cover most of the visible spectrum. Hex colour code can be reproduced consistently across different browsers, operating systems, and devices, making them a reliable reference.

Although the RHS colour code is designed for botanical colour measurement and offers greater precision in defining plant colours, the colour charts can be difficult to access. Hex colour codes and RHS colour codes complement each other, providing a reliable, widely supported tool for colour communication, which helps reveal the true colours of plants.

記錄方法

本圖鑑之植物均於自然光下記錄（避免於室內、陽光直射或是日出及日落時段進行測量），使用RHS色卡和分光光度計，以測量及記錄新鮮植物標本的顏色。使用RHS色卡時，將色卡頁覆蓋於新鮮的植物標本上，透過色塊上的觀察孔直接比對顏色。選擇較新鮮、典型的植物標本，並比較多個標本，可令測量結果更具代表性。

使用工具包括：

– RHS色卡（第六版，2019年重印），以獲得最接近的RHS色卡編號

– Nix Spectro 2 分光光度計（2毫米），以獲得最接近的Hex色碼

Recording Method

All plant species in this illustrated book were documented under natural daylight conditions (avoiding taking measurements indoors, under direct sunlight, or during sunrise and sunset), using both the RHS Colour Chart and the spectrophotometer to measure and record the colour of fresh plant specimens. When using the RHS Colour Chart, we place the colour charts over the fresh plant specimen and look through the holes in the colour patches to compare the colour directly. Choosing fresher, more typical specimens for measurement and comparing multiple samples results in a more representative colour.

The tools used include:

– RHS Colour Chart (6th edition, reprinted in 2019), used to obtain the closest RHS colour code

– Nix Spectro 2 spectrophotometer (2 mm), used to obtain the closest Hex colour code

李敏貞、王家怡
Man-Ching Li & Ka-Yi Wong

本圖鑑的編排
How This Book Is Organised

植物分類系統 Plant Classification System

本圖鑑所收載的蕨類植物和被子植物，分別採用秦仁昌分類系統和被子植物APG IV分類系統。文中亦有收錄《中國植物誌》(英文版)及《香港植物誌》的植物拉丁名稱。

Pteridophytes and angiosperms included in this illustrated book comply with the Ching Ren Chang System and the Angiosperm Phylogeny Group IV (APG IV) systems of classification respectively. The scientific names adopted in the *Flora of China* and the *Flora of Hong Kong* are also documented.

編排結構 The Structure

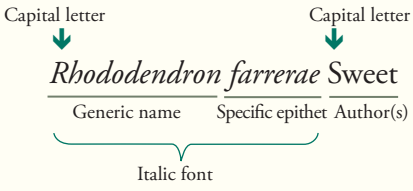
I. 首頁 Opening Page

1 學名
Scientific name

根據《國際藻類、菌物和植物命名法規》，標準的植物學名由拉丁文組成：

學名＝屬名＋種加詞＋命名者

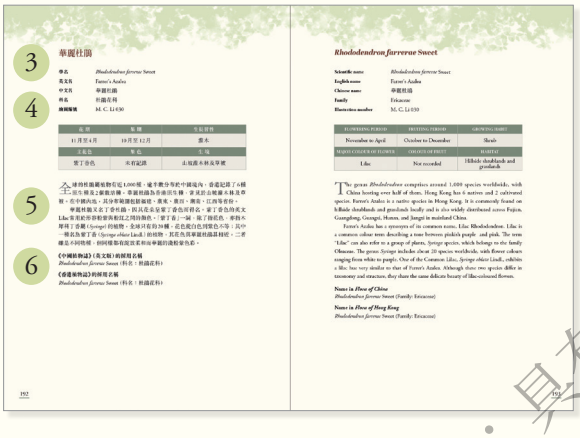
The standard scientific names of plants follow the *International Code of Nomenclature for algae, fungi, and plants*, and are constructed from Latin as follows: Scientific name = Generic name + Specific epithet + Author(s)



2 **中文名稱**
Chinese name

植物的常用中文名稱
The common Chinese names of the plants

II. 植物簡介
Introduction of Plant Species



3 **植物基本資料**
Basic information of the plants

4 **繪圖編號（根據植物繪圖師的繪畫次序而編定）**
Illustration number (complying with the drawing sequence of the botanical illustrators)

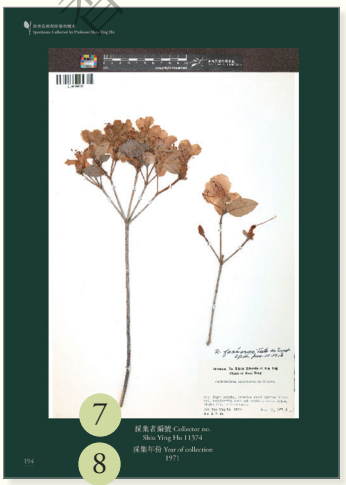
5 **內文描述***
Description*

* 注：「內文描述」所參考及引用之文獻列表於本圖鑑結尾之篇章「植物簡介引用文獻」。

* Note: All references from the 'Description' section are listed in the chapter 'References for "Introduction of Plant Species"' at the end of this illustrated book.

6 **在《中國植物誌》（英文版）與《香港植物誌》的名稱**
Names in *Flora of China* and *Flora of Hong Kong*

III. 胡秀英教授採集的標本*
Specimens Collected by Professor Shiu-Ying Hu*



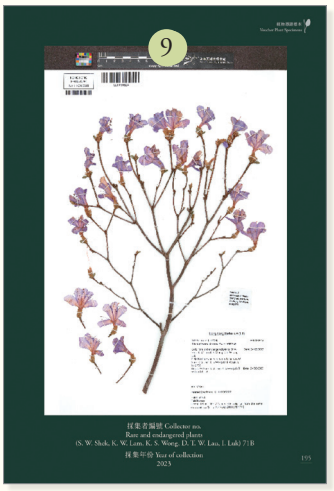
7 **採集者編號 Collector number**

8 **採集年份 Year of collection**

* 注：部分植物沒有胡教授採集的標本，會以植物憑證標本的詳細特徵替代。

* Note: Some plant species do not contain specimens collected by Prof Hu, the details of the voucher plant specimens will be shown instead.

IV. 植物憑證標本 Voucher Plant Specimens



9 展示科學繪圖主要對照的植物憑證標本
Showing the voucher plant specimens used to draw the scientific illustrations

植物憑證標本

植物憑證標本是採自植物個體及種群製成的臘葉標本，經考證及鑒定後，可作為不同研究範疇（例如：生態、基因、化學及藥理）所使用的植物物種的鑒定參考。通常在該研究文章中亦會清楚列明。

Voucher plant specimens

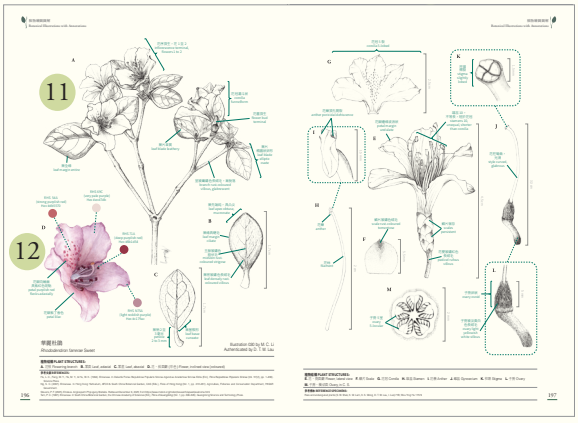
Voucher plant specimen is a kind of plant specimens that is specially collected as a verifiable and permanent reference of a plant individual or population, which is used for analysis of the plant's ecology, DNA, chemicals or pharmacology, and is cited in scientific articles.

10 展示植物憑證標本的詳細特徵*
Showing the details of floral parts on the voucher plant specimens*

*注：僅展示於沒有「胡秀英教授採集的標本」的植物物種

*Note: Only shown in the plant species without 'Specimens Collected by Professor Shiu-Ying Hu'

V. 植物繪圖圖解 Botanical Illustrations with Annotations



11 展示「植物繪圖圖解」、「植物結構」、「參考文獻」及「參考標本」

Showing 'Botanical Illustrations with Annotations', 'Plant Structures', 'References' and 'Reference Specimens'

12 展示植物彩色繪圖

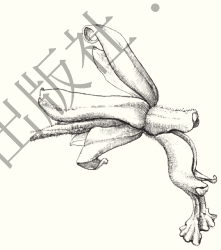
Showing the botanical illustrations in colour

植物的展示面向 Orientation of plant views

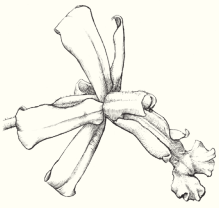
本圖鑑主要的展示面向為「正面觀」、「側面觀」和「斜面觀」，示意圖如下：

This illustrated book mainly shows the frontal view, lateral view and inclined view of the plant, as indicated here:

正面觀 Frontal view



側面觀 Lateral view

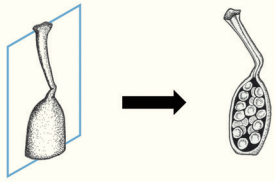


斜面觀 Inclined view

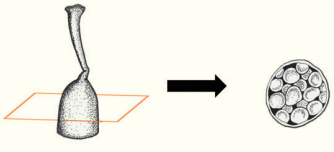
植物的解剖面向 Orientation of plant dissections

本圖鑑主要的解剖面向為「縱切面」及「橫切面」，以下是垂直或水平剖開雌蕊展示胚珠排列的示意圖：

This illustrated book mainly shows the longitudinal section and cross-section of dissection. The following diagram demonstrates the vertical and horizontal dissection of a pistil to show the arrangement of ovules:



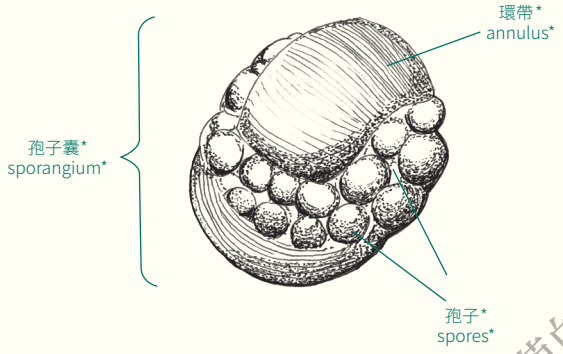
縱切面 Longitudinal section (L. S.)



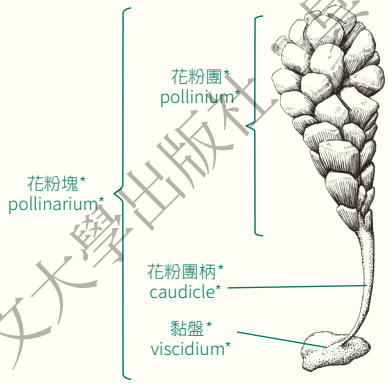
橫切面 Cross-section (C. S.)

相關結構 Associated structures

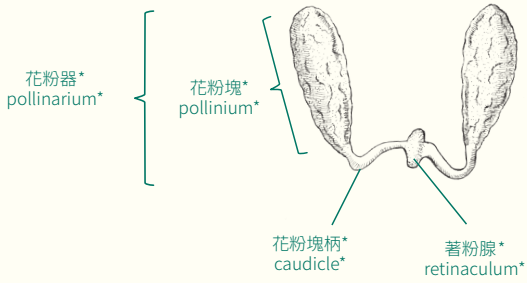
1. 蕨類植物的孢子囊 Sporangia of pteridophytes
例子：水蕨
Example: *Ceratopteris thalictroides* (L.) Brongn.



2. 蘭科的花粉塊 Pollinaria of Orchidaceae
例子：撕唇闊蕊蘭
Example: *Peristylus lacertifer* (Lindl.) J. J. Sm.



3. 蘿藦科的花粉器 Pollinaria of Asclepiadaceae
例子：毛喉牛奶菜
Example: *Marsdenia lachnostoma* Benth.

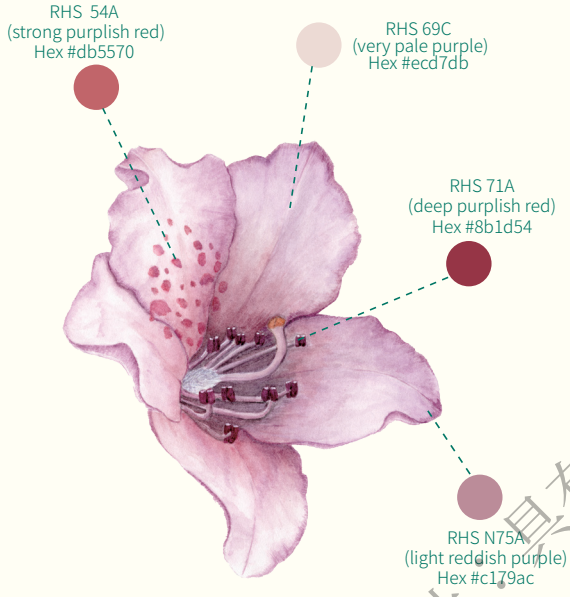


*注：不同植物物種有不同的形態
*Note: Morphology varies across different plant species

植物彩色繪圖 Botanical illustrations in colour

本圖鑑植物的主要花結構均附有彩色繪圖，以加強該植物的鑑別特徵。*

In this illustrated book, most of the plant species are accompanied by a colour illustration of the major floral structure, highlighting the distinctive colour features for identification.*



* 注：蕨類植物（例如水蕨）並非開花植物，因而在本圖鑑中未有附上彩色繪圖。

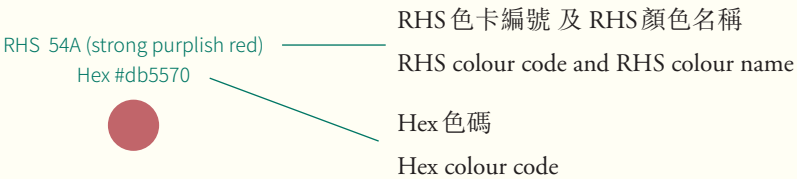
* Note: Pteridophytes (such as *Ceratopteris thalictroides* (L.) Brongn.) are not flowering plants; therefore, colour illustrations are not included in this illustrated book.

植物的主要特徵顏色會特別加注英國皇家園藝學會（RHS）色卡編號、RHS顏色名稱及 16 進位（Hex）色碼。

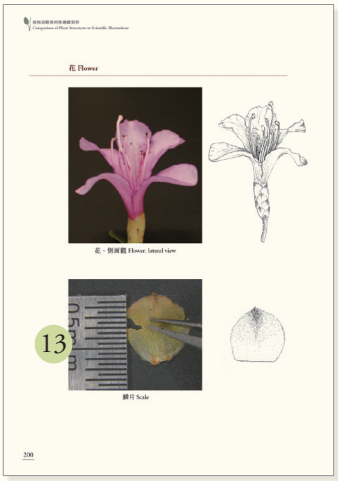
本圖鑑之印刷品及在不同電子顯示器上展示時，可能會出現色差，讀者可查閱RHS色卡，以了解最接近該植物部分的真原色，又或可於互聯網查看相應Hex色碼。

The more distinctive colours of the plant species will be labelled with the Royal Horticultural Society (RHS) colour code, the RHS colour name, and the hexadecimal (Hex) colour code.

The printed materials of this illustrated book and different electronic displays may show a certain degree of colour variation. For accurate reference, readers may refer to the RHS Colour Chart for the true colour of the plant part or check the corresponding Hex colour code online.



VI. 植物結構與科學繪圖對照
Comparison of Plant Structures to Scientific Illustrations



13 **展示所引用的植物結構以做科學繪圖之用**
Showing the plant structures used for each scientific illustration

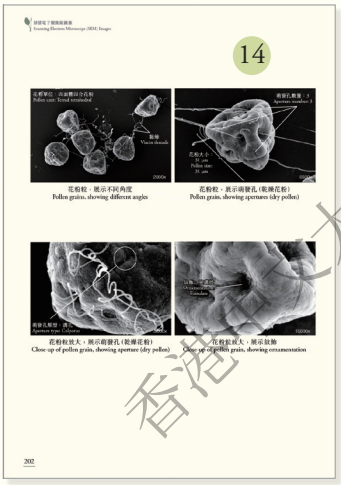
解剖

這是理解植物結構學的其中一個重要步驟，例如華麗杜鵑的鱗片經解剖及平展後能更清楚顯示其形態。

Dissection

This is one of the essential steps for understanding plant anatomy, e.g. the shape of *Rhododendron farrerae* Sweet scale becomes more distinct after dissection and flattening.

VII. 掃描電子顯微鏡圖像
Scanning Electron Microscope (SEM) Images



14 **展示本圖鑑大部分植物物種的花粉粒和孢子的孢粉學特徵，及其相關結構**
Showing the palynological characteristics of pollen grains and spores of most plant species in this illustrated book, along with their related structures

掃描電子顯微鏡可以在高倍放大率下顯示花粉粒和孢子圖像，超越解剖顯微鏡的放大率。SEM圖像的編排為：從不同角度的整體視圖，到顯示花粉粒與孢子紋飾和 / 或特殊特徵的近距影像。此外，亦記錄了與花粉粒和孢子相關的結構，包括蘭科植物的花粉塊和蕨類植物的孢子囊。

本館現時所記錄的花粉粒、孢子及相關結構，均經過除濕器或乾燥機處理，SEM圖像中展示的花粉粒、孢子及相關結構，均是已脫水的狀態。

SEM can show the image of pollen grains and spores under high magnification, which exceeds the capacity of a dissecting microscope. The SEM photos are arranged as follows: from the overall view at different angles, to close-ups of certain areas that reveal the

ornamentation and / or special features on pollen grains and spores. Associated structures of pollen grains and spores, including pollinaria of Orchidaceae and sporangia of pteridophytes, are also documented.

All the recorded pollen grains, spores and related plant structures in our Herbarium were dried using a dehumidifier or oven. The pollen grains, spores and related plant structures in the SEM images are shown in a dehydrated state.

花粉單位

書中收錄的植物物種，大部分的花粉及孢子皆為單粒，亦有四合體的狀態。

Pollen unit

Most plant species recorded in this illustrated book have monad pollen or spore, with some other forms like tetrad.

單粒（花粉 / 孢子）
Monad (pollen / spore)

四合體（花粉 / 孢子）
Tetrad (pollens / spores)

李敏貞、王家怡
Man-Ching Li & Ka-Yi Wong

Ceratopteris thalictroides (L.) Brongn.

水蕨

水蕨是一種傳統民間草藥，具消炎拔毒之效。

Traditionally, Water Fern has been used as folk medicine for its anti-inflammatory and detoxifying properties.

水蕨

學名	*Ceratopteris thalictroides* (L.) Brongn.
英文名	Water Fern
中文名	水蕨
科名	鳳尾蕨科
繪圖編號	D. T. W. Lau 001

花 期	果 期	生長習性
不適用	不適用	草本
主花色	**果 色**	**生 境**
不適用	不適用	水田或淺塘濕地

水蕨的命名歷史始於1753年，瑞典生物學家Carl Linnaeus在《植物種誌》把水蕨納入鹵蕨屬的植物分類系統內，學名定為 *Acrostichum thalictroides* L.。1821年，法國植物學家Adolphe-Théodore Brongniart認為本種更符合水蕨屬的特徵，把學名修訂為 *Ceratopteris thalictroides* (L.) Brongn.。修改後的植物學名「命名者」部分，包含了兩位主要命名人的名字縮寫。近年有研究人員透過分子分析等方法，發現有數個與水蕨外形相似但DNA結構有異的隱存種，顯示有關本種的鑒定工作和身世之謎仍有待研究。

水蕨是一種傳統民間草藥，具消炎拔毒之效，其嫩葉可作蔬菜食用。近年有印度學者研究水蕨的植物化學成分，發現其中含有多樣的有效成分，包括生物鹼、香豆素、皂苷、類萜等，並有待進一步的研究和開發成為新藥。然而，在開發過程中，必須判斷如何在自然保育和新藥研發之間取得平衡。

水蕨在全球的分布範圍廣泛，包括非洲東部、美洲地區和澳洲等地，然而，香港的野生群落較細，偶見於稻田或較淺水的濕地等，在《香港稀有及珍貴植物》中被評級為「易危」。

《中國植物誌》(英文版)的採用名稱
Ceratopteris thalictroides (Linnaeus) Brongniart（科名：鳳尾蕨科）

《香港植物誌》的採用名稱
Ceratopteris thalictroides (L.) Brongn.（科名：水蕨科）

Ceratopteris thalictroides (L.) Brongn.

Scientific name	*Ceratopteris thalictroides* (L.) Brongn.
English name	Water Fern
Chinese name	水蕨
Family	Pteridaceae
Illustration number	D. T. W. Lau 001

FLOWERING PERIOD	FRUITING PERIOD	GROWING HABIT
N/A	N/A	Herb
MAJOR COLOUR OF FLOWER	**COLOUR OF FRUIT**	**HABITAT**
N/A	N/A	Paddy fields, shallow wetland ponds

The authentication of Water Fern dates back to 1753, when a Swedish biologist Carl Linnaeus classified the plant species under the genus *Acrostichum* in *Species Plantarum*. Consequently, the plant species was named *Acrostichum thalictroides* L. In 1821, a French botanist Adolphe-Théodore Brongniart observed that its characteristics were closer to those of the genus *Ceratopteris* and renamed it *Ceratopteris thalictroides* (L.) Brongn. The revised scientific name retains both the new and original author names. In recent years, some researchers have used molecular analysis and found that Water Fern actually comprises several cryptic species with distinct DNA components. Therefore, the species identity requires further study for verification.

Traditionally, Water Fern has been used as folk medicine for its anti-inflammatory and detoxifying properties. Its young leaves are edible and consumed as vegetables. Some Indian researchers have identified bioactive compounds in the plant, such as alkaloids, coumarins, saponins, and terpenoids, suggesting its potential for new drug development. Despite this potential, it is essential to consider how to balance nature conservation with the development of new drugs.

Water Fern is widely distributed around the world, including East Africa, the Americas, and Australia. However, the wild population in Hong Kong is relatively small, and they are only occasionally found in paddy fields or shallow wetland ponds. The species is currently ranked as 'Vulnerable' in the *Rare and Precious Plants of Hong Kong*.

Name in *Flora of China*

Ceratopteris thalictroides (Linnaeus) Brongniart (Family: Pteridaceae)

Name in *Flora of Hong Kong*

Ceratopteris thalictroides (L.) Brongn. (Family: Parkeriaceae)

採集者編號 Collector no.
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採集年份 Year of collection
1972