

### Delivering the vision

While the role of plants in Agrisciences, Horticulture, Biotechnology, and Food are obvious, all the SCI groups rose to the challenge and have nominated plants that relate to their area of science.

This project would not have been possible without Alison Foster, a committee member on the SCI Horticulture Group from Kew Gardens, who has led the project, designing and planting the garden with the support of the Horticulture group.

#### Regional Interest Groups

London  
Thames & Kennet  
Cambridge  
Chinese UK  
All Ireland  
Yorkshire & Humber  
Scotland  
Bristol  
Liverpool & Northwest  
East Midlands

#### International Groups

America  
Canada  
Australia

#### History of SCI

SCI is a unique multi-science and multidisciplinary forum where science meets business. SCI promotes Innovation and Education via forums and networks which support the delivery of our charitable aim to advance the commercial application of chemistry related sciences into industry. SCI was established by Royal Charter in 1881, by a prominent group of forward thinking Scientists, Inventors and Entrepreneurs; with founder members going on to set up major businesses producing many of the daily products we recognise today. Join SCI today to share and exchange information, ideas, innovations and research. Members have access to a global network of member specialists from sectors as diverse as food and agrisciences, environment, energy, materials and health and well-being.

SCI welcomes you to

# A SCIENCE Garden



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SCIENCECHEMISTRYINNOVATION - where science meets business

A project to bring together SCI's 31 technical, regional & international groups and showcase the multitude of roles of plants across chemistry related sciences and industry

## Inspiration & Theme

The natural world is the source of inspiration for and elements of many inventions and developments in life sciences, from medicines to materials, dyes to insecticides. This project brings together SCI's technical and regional interest groups to showcase the connections between all areas of chemistry related science, as well as highlighting the intrinsic role played by natural resources and the environment in industry.

As a charity, SCI has a core objective to promote links between science and industry for the benefit of society and the SCIENCE Garden provides a perfect opportunity to demonstrate these links through the regeneration of an area that can now be enjoyed by all our members and guests.

## Health and Wellbeing

Featured plants:

### 01 *Laburnum x wateri* 'Vossii'

The smoking cessation therapy varenicline is related to cytisine, a compound found in this plant.

### 02 *Artemisia annua*

Front-line treatments for malaria contain derivatives of artemisinin, which is obtained from this plant.

### 03 *Taxus baccata* "Fastigiata"

A source of deacetyl-baccatin III, a precursor to paclitaxel, which is used to treat ovarian and breast cancers.

### 04 *Papaver somniferum*

Morphine is isolated from the unripe seed capsules and used to manage acute pain.

### 05 *Helleborus niger*

Extract of this plant induces cell apoptosis in particular blood cancers. Contains steroidal sapogenins and cardiac glycosides.

Also in the SCIENCE Garden:

### *Galega officinalis*

Contains galegine, which inspired the development of metformin for the treatment of diabetes mellitus

### *Ephedra fragilis*

Contains ephedrine and pseudoephedrine, both of which are used in cough and cold preparations as decongestants.

### *Ricinus communis*

The source of castor oil, used in various drug formulations.

### *Digitalis purpurea*

A source of digitoxin, used clinically to treat atrial fibrillation.

### *Colchicum autumnale*

Produces colchicine, which can be used to induce polyploidy or treat gout.

### *Galanthus woronowii*

The original plant that galanthamine was isolated from, now used as a treatment for Alzheimers.

### *Ammi visnaga*

The asthma drug Intal is related to khellin, a natural product from this plant.

### *Narcissus* 'Carlton'

Grown widely as a crop plant for the extraction of galanthamine, a drug used to treat Alzheimers disease.

## Agrifood

### 06 *Vitis cognetiae* 'Claret Cloak'

Wine making (fermentation) is a major biotechnological process.

### 07 *Humulus lupulus*

Used in brewing beer thanks to bacteriostatic substances.

Also contains alkaloids such as codeine and morphine.

### 08 *Zea mays*

The prolamin protein zein, from sweetcorn, is used as a coating in drug formulation.

### *Melaleuca citrina* 'Splendens'

Secretes a natural herbicide. Observation of this led to the development of Callisto™, a synthetic HPPD inhibiting herbicide.

### *Argania spinosa*

The seed oil is used like olive oil for cooking.

### *Sarracenia alata*

A carnivorous plant that catches insects in its pitchers (modified leaves).

### *Camellia* sp.

A close relative of the plant whose leaves are used as tea.

## Materials

### 12 *Eucommia ulmoides*

The only hardy rubber producing tree. The solid latex is used for lining oil pipelines and insulating electric cables. Also used in China as a tonic and for arthritis.

### 13 *Euonymus europaeus* 'Red Cascade'

The stems between nodes shoots are long and straight, used as spindles for bobbins in textile industry. The seed oil is unusual in containing acetic acid.

### 14 *Isatis tinctoria*

A source of the dye indigo, still grown commercially in the UK for craft dyers.

### 15 *Trachelospermum jasminoides*

A strong bast fibre is obtained from the inner bark and can be used to make ropes, sacks and paper. The flowers yield an essential oil containing E-nerolidol and alpha-phellandrene.

### 16 *Aconitum* 'Stainless Steel'

Representing Construction Materials through it's name.

### *Tradescantia virginiana*

When the stem of this plant is cut, latex is released, which becomes threadlike and silky upon hardening.

### *Cyperus involucratus*

Papyrus, one of the first types of paper, was made from this genus of plants.

### *Fatsia japonica*

A common name for this plant is the glossy-leaved paper plant.

## Historical Interest

### 17 *Roscoea purpurea*

This genus of plants was named for the grandfather of the very first President of SCI, Sir Henry Roscoe.

### 18 *Dahlia* 'David Howard'

David Howard was President of SCI from 1886-1887.

### 19 *Cycas revoluta*

Chemist and Paleobotanist Marie Stopes studied cycads.

## Geographical

### 20 *Sarracenia*

*Sarracenia* is a carnivorous plant from North America, trapping and digesting insects to gain nutrients not found in their natural, waterbased environment.

### 21 *Prunus mume* 'Beni-chidori'

One of the most beloved flowers in China, planted here to represent the Chinese UK group.

### 22 *Baptisia australis*

Used by Native Americans both as a blue dye and medicinally to treat a range of ailments.

### 23 *Coronilla valentina* subsp. *glauca* 'Citrina'

Originating in the Mediterranean, this grows well in coastal areas and is very salt tolerant. Beautiful scent.

### 24 *Paeonia suffruticosa*

Important in Chinese medicine and symbolism. Prized for its red roots.

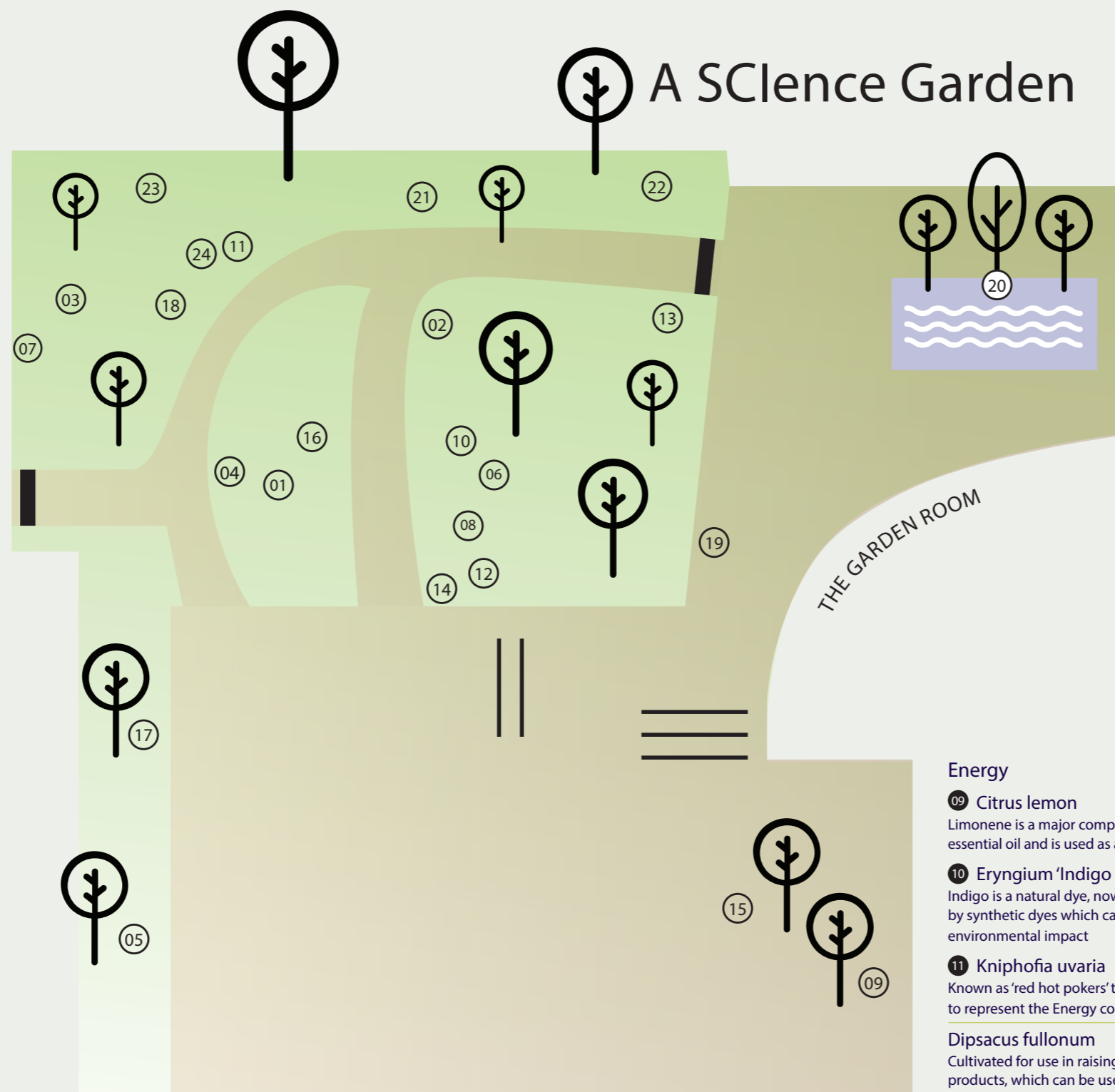
### *Indigofera heterantha*

An ornamental relative of the natural source of indigo (*I. tinctoria*).

### *Sanguisorba canadensis*

### *Cornus canadensis*

# A SCIENCE Garden



## Energy

### 09 *Citrus lemon*

Limonene is a major component of citrus essential oil and is used as an industrial degasser.

### 10 *Eryngium* 'Indigo Star'

Indigo is a natural dye, now superceded mainly by synthetic dyes which can have a negative environmental impact

### 11 *Kniphofia uvaria*

Known as 'red hot poker' this is planted here to represent the Energy committee.

### *Dipsacus fullonum*

Cultivated for use in raising the nap of woollen products, which can be used in insulation