

Alison Foster

A chemist in the world of plants

The University of Oxford Botanic Garden, the oldest botanic garden in Great Britain

A PhD is a doctorate, a higher degree which can be taken after a first degree.

Horticulture is the art or science of cultivating plants.

Chemistry and botany are two important sciences. Alison Foster describes her work at a place where they meet – the University of Oxford Botanic Garden.

Having completed a chemistry degree I began my career as a chemist in the pharmaceutical industry, in a medicinal chemistry department. I enjoyed the creativity of the job and the varied challenges that the chemistry provided on a daily basis. However, after a couple of years I decided to explore new challenges and went back to University to do a PhD in synthetic organic chemistry.

My project involved the total synthesis of a natural product that had been isolated from lichen whilst others were working on natural products from plants and marine organisms. On completion of my PhD, I took up a position as a process chemist with another pharmaceutical company and again enjoyed the new challenges, the variety and the satisfaction of delivering high yielding new routes to potential drug molecules.



Alison Foster among plants at the botanic garden

Early interests

As a teenager, my bedroom was overrun with houseplants that I got from my grandmother who was a passionate and skilled gardener. My university years had somewhat diminished the collection (on one sad occasion, some plants were lost when we left them on top of the car that was loaded up with my goods at the end of term, then drove away forgetting the plants were still on the roof!) but my interest in plants was reawakened on moving into a rented house with a garden. Soon I began receiving cuttings and seedlings from my parents and grandmother and my gardening hobby was underway.

After six years back in industry, while I enjoyed my work as a process chemist, I felt more and more that a change of direction was inevitable. I took my first steps to a career in horticulture by studying for the RHS (Royal Horticultural Society) general certificate in my spare time and finally I began looking for trainee placements. I was incredibly fortunate that the Birmingham Botanical Gardens and Glasshouses gave me an opportunity as a trainee and I have never looked back.

A year of training

I continued my horticultural training at the University of Oxford Botanic Garden. As part of my trainee year, I led a guided tour for the Friends of the Botanic Garden and chose to talk about the interesting chemical stories I had amassed about the colours of the leaves and flower parts, the smells released by the leaves or flowers, or the

medicinal properties of the plants. I have never had such an overwhelmingly positive response from non-chemists when I've talked chemistry with them. I felt like I'd discovered a secret – talk to people about something they shy away from in an environment they love, and they will listen and be interested.

At the end of my trainee year, I was asked to stay on to plan a new medicinal plant collection, which is now thriving. This was a great way to combine my interests in chemistry and plants. In my current role (Senior Curator) I am working to build links between the research departments of the University (such as plant sciences, chemistry, engineering, pharmacology etc.) and the Botanic Garden.



The Botanic Garden has a special Home Office licence to cultivate Low-THC cannabis. It is an important plant in our collection – to support our programmes about materials and fibre as well as about medicinal plants. (THC is tetrahydrocannabinol, the psychoactive substance in cannabis.)

Alison helped to set up an audio trail at the Botanic Garden called 'Chemistry in the Garden'.

To celebrate International Year of Chemistry in 2011, we worked with a team from the university Chemistry department to produce an exhibition entitled "Chemistry at the Garden". The exhibition posters described compounds derived from plants and the chemistry and methodologies required to discover, extract, mimic and utilise those compounds. It ran at the Garden for 4 months and provided much interest for the Garden visitors.

Subsequently we have continued the collaboration to launch a "Chemistry at the Garden" audio trail to enable our visitors to hear directly from scientists working in the chemistry department, whilst looking at the plant of interest alongside the 3-D molecular model of the chemical featured on the audio clip. We are also working with the Plant Scientists and Engineers to support them in their public engagement and outreach work.

When I first left my pharmaceutical industry job lots of people couldn't understand why. They certainly couldn't see any connection with the two careers, but five years on I think I've found the perfect link between chemistry and horticulture.