

Sparxell, the world's first 100% natural, high-performance biodegradable colour platform

As part of our quick founder questions series – or QFQs – we spoke to Dr Benjamin Droguet, Founder & CEO of Sparxell about creating unique, bio-inspired, chemical-free colours as an alternative to environmentally destructive synthetic colourants.

Temps de lecture : minute

1 June 2024

Synthetic colourants are used across cosmetics, fashion, packaging, paint, and other industries but come at huge cost to our planet having not been designed with circularity in mind. For instance, 1.5 million tonnes of dyes and microplastics enter the environment every year from their use in textiles alone. 20% of industrial wastewater pollution is caused by textile dyeing and finishing. These products may never degrade. Dyeing and finishing processes are recognised as the primary driver of GHG emissions in the textile value chain, representing about a third of its emissions.

Fashion is only one of these industries that relies heavily on colour. What's interesting to notice is how all of this is a man-made issue. Instead, nature reduces, reuses, and recycles inherently and, to me, has been a source of inspiration throughout my youth. Finding a solution to standard, environmentally destructive synthetic colourants was the catalyst for taking inspiration from nature to investigate alternatives. Alongside my colleagues at the University of Cambridge, in a team led by Professor Silvia Vignolini, I undertook research into how we could replicate the vibrant colours found in nature using plant-based cellulose, a renewable, biodegradable resource that can be extracted from waste

streams, without compromising on durability.

Tell us about the business – what it is, what it aims to achieve, who you work with, how you reach customers and so on?

At *Sparxell*, we have developed a unique, bio-inspired, chemical-free way to make colours. We considered that if plants and animals can create magnificent colours for themselves, why couldn't we replicate that in industry? By harnessing the natural qualities of cellulose, a renewable, biodegradable resource that can be extracted from waste streams, we replicated the vibrant colours displayed in natural realms, such as on a butterfly's wings or a bird's feathers, creating vivid coloured products which we can then use in the fabrication of everyday products such as cosmetics, textiles, packaging, and paints.

Our target industries spend billions of dollars a year on harmful colourants. Our goal is to capture a significant market share with our fully sustainable and high-performance plant-based alternative.

Consumers are advocating for sustainable products. Governments are increasingly regulating chemical industries. Brands are accepting that they must change the way they manufacture their products to be compliant and stay ahead. Sparxell is an enabler of these goals.

How has the business evolved since its launch?

Since its launch in 2022, Sparxell has been working on scaling-up operations and developing product prototypes for commercial partners. Late 2023 was a busy period: Sparxell was awarded the prestigious \$100K Ray of Hope Prize from the Biomimicry Institute and, a month later, we

joined the Morgan Stanley Sustainable Solutions Collaborative. Recently, Sparxell closed its first funding round with over \$3.2M of funding. Investors included the Circular Innovation Fund in which beauty giant L'Oréal is an anchor investor. We are now planning our Series A.

Tell us about the working culture at Sparxell

Everybody is passionate about making a positive impact and sustainability stewardship. A unique aspect of Sparxell's platform is its roots in bioinspiration. Nature excels with beauty and performance and does so sustainably. Our team collectively strives to embed these guiding principles across every element of our organisation. Although we interact with a wide range of clients, from top luxury brands to commodity chemical distributors, we always return to the fundamentals of how nature operates – sustainably, efficiently, and with beauty.

How are you funded?

Sparxell is funded through private investment alongside grants, and awards. *We recently closed a \$3.2M seed funding round* with participation from a mix of venture capital funds including those focused on deeptech, climate innovation, impact-investing, ocean-tech, and strategic and sector specialists, demonstrating the cross-industry impact of our technology and products. Investors included the Circular Innovation Fund in which beauty giant L'Oréal is an anchor investor. We are now planning our Series A.

What has been your biggest challenge so far and how have you overcome this?

One of our biggest challenges so far – and apologies for the lack of originality here – has been finding enough lab space. In a city like

Cambridge, space is so precious: a 2023 report estimated the shortfall of nearly 1 million sq ft. As a university spinout, we were very lucky to be able to keep using the labs where the technology was born. I am still amazed by how much the team managed to do in such a confined space in the early days – our first lab used to be a garage but was recently redeveloped with best-in-class energy and quality standards. Now, we are planning our next big move.

How does Sparxell answer an unmet need?

Pollution from pigments and colourants is a huge issue. There is currently no sustainable yet performing colourant alternative that is widely used in high-emitting industries such as paint, packaging, fashion, and cosmetics. There is an urgent need to provide these industries with a viable, high-quality alternative to synthetic chemical colourants – something which Sparxell can deliver.

There is currently a mismatch between what regulators and consumers are demanding, and what brands are providing. Sparxell's sustainable, plant-based, and biodegradable colour platform will help brands become more sustainable by choosing a colourant that is both renewable and high performing.

What's in store for the future?

2024 is set to be an exciting year for Sparxell, as the first commercial sale of products made using our technology is expected. We have started developing prototypes with leading fashion brands and cosmetic manufacturers among others, and we are looking forward to developing further partnerships in the future.

What one piece of advice would you give other founders or future founders?

Certain things need to be done at the right time, in the right order, laid down and planned. Be a master of time and planning.

And finally, a more personal question! What's your daily routine and the rules you're living by at the moment?

I think it is important to keep a healthy work/life balance - easier said than done! My perfect day would start with a swim. Our offices and lab in Cambridge are 100 meters from my front door. Although this makes it impossible to be late in the morning, it is also tempting to go back to the office after hours! I do try to come home every day at a reasonable hour.

During the day, I love finding myself surrounded by an exceptional and dedicated team. My role changes every hour: thinking about the future, being present and learning from past successes and mistakes is rewarding.

Dr Benjamin Droguet is the Founder & CEO of [Sparxell](#).