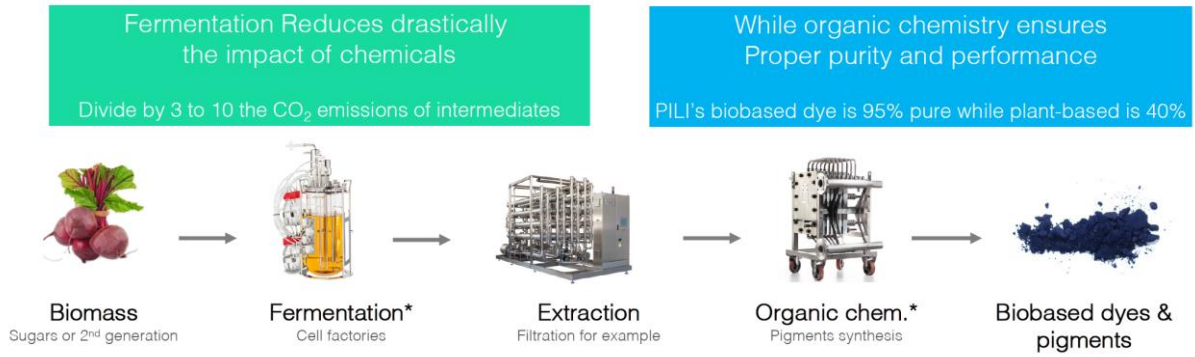
PILI: New biobased building blocks for the production of sustainable high-performance dyes, pigments and chemicals

Guillaume Boissonnat, PILI, Chief Scientific Officer

The textile industry is considered responsible for around 4% of the global greenhouse gases emissions.[1] Among the whole manufacturing process, dyeing steps are the most impacting ones, accounting for 10 to 40% of the textile production environmental impact. Each year, over 100 million tons of fibres are manufactured requiring about 2 million tons of dyes, thus generating a considerable amount of waste. The pigment manufacturing industry uses similar processes to manufacture over 1 million tons of organic molecules every year to be formulated in paints and coatings, inks and polymers. This industry is currently looking for sustainable alternatives to provide renewable and high-performance colouring agent.

Dyes and pigments production rely on a limited number of high-volume aromatic intermediates that are produced through polluting processes from fossil sources.[2] The development of new aromatic building blocks through fermentation processes could provide a way to reduce considerably the environmental impact of the colour industry. Switching from fossil-based precursors to fermentation-based intermediates allows to cut down 50 to 90% of the emissions linked to the dyes and pigments synthesis.



PILI is a French biotechnology company developing and producing sustainable dyes and pigments through a combination of industrial fermentation of microorganisms and green chemistry. New aromatic building blocks are now produced by PILI's proprietary microorganisms at unprecedented volumes and competitive prices. Their modification through PILI's processes allows to replace existing references of dyes and pigments by 70 to 100% biobased equivalents. The performances of those references are equivalent to their fossil-based counterparts and price ranges will reach competitiveness upon scaling-up.

The industrial development and commercialization of a first textile dye and the following projects on which PILI is working to produce and sell new ranges of biobased pigments will be discussed.

[1] Fashion on Climate: How the fashion industry can urgently act to reduce its greenhouse gas emissions, 2020 ©McKinsey & Company and Global Fashion Agenda

[2] Ulmann's encyclopedia of industrial chemistry, © **2002** Wiley-VCH Verlag GmbH & Co. KGaA. All rights reserved