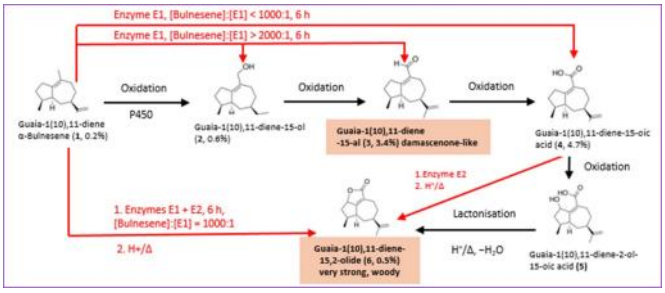
PROJECT NUMBER

21103

Synthesising agarwood aroma compounds through selective oxidation of alpha-bulnesene

Creating the scent of agarwood by selectively changing the alpha-bulnesene compound.

Applications: Fragrance, Cosmetics



Features	Benefits
Biotransformation of α-bulnesene by cytochrome P450BM3 into key aroma compounds of agarwood. The starting material is derived from patchouli oil	Agarwood-producing Aquilaria trees have been listed as threatened species since 2006. This process provides a more sustainable source for agarwood aroma compounds by using patchouli, a much more abundant resource
Formation of the lactone involves a one-pot enzyme cascade using two variants of the same enzyme (cytochrome P450BM3)	More robust and low-cost process compared to conventional cascades that use different enzymes
Engineered P450BM3 variants with high activity and regioselectivity (>90%) for C15 oxidation of α-bulnesene	Much higher yield compared to the resource intensity of conventional extraction, where typically 70kg of agarwood yields just 20g of oil

Features	Benefits
Synthesis of both the aldehyde and lactone by the oxidation of α-bulnesene	The hydroxylated products of alpha-bulnesene could additionally have wider flavour, fragrance or biological properties

Available for

- Co-development
- Consulting
- Licensing

To find out more, contact enquiries@innovation.ox.ac.uk and quote the project number.