HARNESSING THE CHEMISTRY OF PLANT NATURAL PRODUCT BIOSYNTHESIS

Sarah E. O'Connor

John Innes Centre. Department of Biological Chemistry. Norwich, NR4 7UH. UK. sarah.oconnor@jic.ac.uk

Plants, which make thousands of complex natural products, are outstanding chemists. Through the concerted action of enzymes that are assembled into metabolic pathways, nature creates chemical complexity from simple starting materials. I will highlight some of the unusual enzymatic transformations that plants use to make complex, bioactive natural products, and will also discuss methods by which these pathways can be harnessed for metabolic engineering. The focus is on the biosynthesis of the monoterpenes called iridoids, and the alkaloids derived from iridoids, known as the monoterpene indole alkaloids. The discovery, functional characterization and mechanistic study of enzymes involved in the biosynthesis of these important compounds in several medicinal plant species will be discussed.