ON THE COVER

Glycyrrhizin, extracted from the roots of licorice plants, is a powerful sweetening agent with a wide range of pharmacological properties. In addition to applications as a natural sweetener, it is included in certain traditional medicines because it enhances liver function and exhibits antiviral activity. However, large-scale production of glycyrrhizin is a considerable challenge. Seki et al. (pages 4112–4123) identified a cytochrome P450 monooxygenase, CYP72A154, that is important in the biosynthesis of glycyrrhizin. The authors show that genetically modified yeast can produce glycyrrhetinic acid (a glycyrrhizin intermediate and the active form of glycyrrhizin) through combinatorial expression of CYP72A154 and two previously acquired pathway enzymes, providing proof of concept for engineering the production of high-value triterpenoid products in yeast. The cover image of dried licorice root was taken by Kiminori Toyooka.

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