

Metabolic engineering of yeast for fermentative production of flavonoids - DTU Orbit (09/11/2017)

Metabolic engineering of yeast for fermentative production of flavonoids

Yeast *Saccharomyces cerevisiae* was engineered for de novo production of six different flavonoids (naringenin, liquiritigenin, kaempferol, resokaempferol, quercetin, and fisetin) directly from glucose, without supplementation of expensive intermediates. This required reconstruction of long biosynthetic pathways, comprising up to eight heterologous genes from plants. The obtained titers of kaempferol $26.57 \pm 2.66 \text{ mgL}^{-1}$ and quercetin $20.38 \pm 2.57 \text{ mgL}^{-1}$ exceed the previously reported titers in yeast. This is also the first report of de novo biosynthesis of resokaempferol and fisetin in yeast. The work demonstrates the potential of flavonoid-producing yeast cell factories.

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