FST Lunchtime Seminar

Develop Plant Platforms for the Sustainable Production of Valuable Chemicals

By Dr. Sarojam Rajani

Host: Prof. Zhou Weibiao **Date:** 6th May 2016, Friday
Time: 12-1pm **Venue:** S8-03-14 Executive Classroom

Abstract

Plants are capable of producing an overwhelming variety of specialized metabolites among which terpenoids are of great economic importance and are widely used for flavours, fragrances, pharmaceuticals and cosmetics. In addition to their commercial value, terpenoids play important role in plant pollinator attraction and indirect plant defence. The ecological and commercial importance of terpenoids has prompted the rapid development of engineering terpenoid production in transgenic plants. Mono- and sesquiterpenoids are the common components of floral scents and essential oils and are produced in specialized structures called peltate glandular trichomes Over the past few years, many genes for enzymes involved in the terpenoid essential oil biosynthetic pathway in various plants have been characterized but little is known about genes that regulate essential oil production and glandular trichome production. Mint plants of Mentha species are industrial crops as they are the source of the best known monoterpenes -menthol and carvone which are extensively used in confectionary goods, pharmaceuticals, oral care products, teas and tobacco products. We are using the variety Spearmint, to study regulatory controls of genes and enzymes involved in terpenoid production and storage. Additionally we aim to engineer mint for higher yields and also develop it as a platform to produce novel terpenes or different terpenes. An update on our progress for developing mint as green factory for terpene production will be presented.

About the speaker

Dr. Rajani received her Ph.D. from Institute of Molecular Agrobiology, National University of Singapore and her post-doctoral training at the University of California-Davis. She then joined as a research scientist in the Agrobiotech research division of DuPont-Pioneer company. She later joined Temasek Life Sciences in 2009 as a strategic research manager and currently is a Principal investigator. Her main research focus at present involves understanding secondary metabolism of aromatic plants.