Fluorescence in Food Safety

Thanasat Sooksimuang

National Metal and Materials Technology Center (MTEC), National Science and Technology Development Agency (NSTDA), 114 Thailand Science Park, Phahonyothin Road, Khong Luang, Pathum Thani 12120, Thailand

ABSTRACT:
Point of care (POC) diagnostic tools play an important role in food safety which are demandingly used throughout food production from raw material to final product. Not only specific to analysts but simple, quick and quantitative sensing are preferred performances for POC. A class of fluorescent organic materials with pentahelicene core structure has been established for sensing applications. Two fluorescent organic molecules are demonstrated for different characters in sensors. Compound M424 was proven as an excellent signal reporter for a microarray diagnostic platform called MycoSMART for quantifying multiplex mycotoxins in grain samples. The second, compound N027 was used as a direct sensing material for determining ethanol quantity in some major food liquid ingredients. Both platforms have been designed and optimized to seamlessly work with in-house small readers to become complete POC systems. This presentation discusses the development of fluorescent organic materials from synthesis to the utilization in sensors for real samples.