Showcasing research from Professor Ken-ichi Sakai's laboratory, Chitose Institute of Science and Technology, Chitose, Japan.

Harnessing inhomogeneous π-aggregates: a new path to optical modulation in methyl salicylate-based solvent-free liquids

When an alkoxy chain with a carbon number of four to seven is introduced at the 5-position of methyl salicylate (MS), the originally colourless liquid turns vivid yellow and exhibits distinct absorption and fluorescence spectra. The emergence of these optical properties indicates that alkoxylation promotes the formation of unique π-aggregates in the liquid phase. Within these locally ordered aggregates, π-electrons appear to be delocalized over multiple MS molecules, giving rise to collective electronic interactions responsible for the characteristic colour and fluorescence behaviour.

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See Ken-ichi Sakai *et al.*, *Chem. Sci.,* 2025, **16**, 21797.

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