MS29-2-5 Co-crystallization of organic chromophore roseolumiflavin and effect on its optical characteristics #MS29-2-5

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Abstract
Recent advances on organic solid-state chromophores have led to several potential applications in diverse fields like organic or polymeric light-emitting diodes (OLEDs/PLEDs)[1,2], solid-state lasers[3,4] or fluorescent chemosensors[5], promising great interest from a broad range of research. Moreover, tunability, flexibility and low cost characterize and add to a great advantage for potential usability of organic chromophores[6]. A substance group of interest is alloxazine including its isomer isoalloxazine, the latter being the basis for flavins. While their important role in biological processes has been established[7,8], flavins also act as chromophores. Mainly considered in solution, their solid-state characteristics, especially structural characterization remains almost unstudied. With the isoalloxazine derivative roseolumiflavin we were able to successfully design three robust binary co-crystals with hydrogen and halogen bonding motives[9]. The co-crystals further exhibit altered optical properties in the solid state confirming easily accessible luminescence modification via a crystal engineering approach. Structural characterization of roseolumiflavin and its multicomponent crystals display differences in crystal packing with rearranged π ⋯ π stacking motifs being noticeable as a result of the co-crystal formation. Our findings thus render new possibilities to investigate on flavins in the aspect of crystal engineering to tune optical properties of organic chromophores.

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