



Contribution ID: 63

Type: Poster

NON-IRIDESCENT STRUCTURAL COLORATION IN THREE DISTINCT COLORS OF BOUGAINVILLEA FLOWER PETALS

The topic of structural color is crucial in the current world since it affects both industrial applications and our day-to-day lives. The current study delves further into the significance of microstructures in determining the visual appearance of three distinct colors of bougainvillea flower petals: pink, yellow-orange, and white. With the aid of a field-emission scanning electron microscope (FESEM), the surface morphologies of the petals are investigated. We affirm that micro-papillae and nanostructures present on the surface would dictate the color of the aforesaid specimen-types along with the pigments may bring in any observable differences. A sophisticated micro-spectrophotometry technique has been employed to acquire the normal reflectance and polarization-sensitive reflectance features. The nature of reflectance characteristics corresponding to their microstructures has been studied. Again, we anticipate that the random arrangements of the epidermal cells provide sensitivity to the specimen towards polarized light. Also, ethanolic media of different refractive indices have been used to demonstrate the contribution of structural color. However, angle-resolved UV-vis spectral response confirms that the observed structural color is non-iridescent in nature. An attempt has also been made for biomimicking petal microstructure using PVA polymer negative replica. Our study is expected to unfold new insights that may have value in the fields of nanophotonics, nanocoatings, textile design, etc.

Keywords: Structural color; Reflectance; Polarization; Iridescence; Biomaterial; Biomimicking

Author: Mr DAS, Bikash Kumar (Tezpur University)

Co-authors: Prof. MOHANTA, Dambarudhar (Tezpur University); Mr GUPTA, Roshan (Tezpur University)

Presenter: Mr DAS, Bikash Kumar (Tezpur University)

Session Classification: Technical Session 03

Track Classification: Track 02