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CHROMATICITY PROPERTIES OF CURCUMINOIDS DYE NANOFIBERS PREPARED BY ELECTROSPINNING FOR WHITE LIGHT DOWN- CONVERSION

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ABSTRACT- In this study, the chromaticity properties of curcuminoids dye were studied when it be in nanometer scale, where curcuminoids were loaded in nanofibers using the electrospinning technique. Poly(methyl methacrylate) PMMA was used in three types of viscosity (5, 10 and 15wt%) which were mixed with (*curcuma longa L.*) powder to produce curcuminoids solution by using the centrifuge to separate the curcuminoids solution from the impurities. Different amounts of polymer solution mixed with curcuminoids (1 to 5 ml) were spun by electrospinning to study its properties. The effect of annealing on samples was studied. The chromatic study of the samples and the effect of the amount and viscosity of the solution were studied by pumping the samples in three different LED wavelengths (365, 390 and 445 nm). The white light chromaticity coordinates (CIE), color temperature (CCT) and color rendering index (CRI) were measured. The optimum CIE, CRI and CCT values of (X = 0.3051; Y = 0.3370), 64 and 6809K, respectively were obtained. By using field emission scanning electron microscope (FESEM) device, the curcuminoids nanofibers diameter was measured, where the values obtained ranged between 191 to 234 nm. After the annealing process, 15 nm nanoparticles were obtained.

Keywords: electrospinning, nanofibers, curcuminods, white light.