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AN AVENUE TO DESIGN AND DEVELOP NOVEL PIGMENTS WITH SPECIAL THERMOSTABILITY AND PHOTOSTABILITY

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ABSTRACT

Layered double hydroxide Mg/Fe with molar ratio3 was synthesized by co-precipitation and followed by hydrothermal method. The compound was then later going through ion exchange with $Na_2CO_3$for 48 hours to produce Mg-Fe-CO_3LDH. The solid produced was characterized using X-ray diffraction (XRD), Fourier Transform Infrared spectroscopy (FTIR) and Field Emission Scanning Electron Microscopy/ Energy-Dispersive X-ray Spectroscopy (FESEM/EDX). Intercalation of the astaxhantin into a Mg/Fe molar ratio 3 hasbeen carried out by an anion-exchange method in an effort to improve its thermostability and photostability. The intercalateddye exhibited improved light fastness. The effect of the stability enhancement was more distinct withMg/Fe molar ratio 3. The reason of the improvement was proved to be the hindrancefrom the contact with the atmospheric oxygen because the dye molecules were incorporated in the interlayer space. The amount of the adsorbed dye could be increased more than ten times when an aqueous ethanolic solution was used instead of pure ethanol as solvent in the adsorption process.

KEYWORDS: Astaxhantin, Intercalation, Double Layer Hidroxide,Thermostability, Photostability

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