SYNTHESIS OF CaAl-3,4-DICHLOROPHENOXYACETIC ACID LAYERED DOUBLE HYDROXIDES (LDH) VIA CO-PRECIPITATION METHOD AND ITS CONTROLLED RELEASE ACTIVITIES

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This Final Year Project Report entitle "**Synthesis of CaAl-3,4-Dichlorophenoxacetic acid Layered Double Hydroxide (LDH) via Co-precipitation Method and Its Controlled Release Activities**" was submitted by Aqmar Aqeem Bin Azhar, in partial fulfilment of the requirements for the Degree of Bachelor Science (Hons,) Chemistry, in the Faculty of Applied Sciences, and was approved by

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ABSTRACT

SYNTHESIS OF CaAl-3,4-DICHLOROPHENOXYACETIC ACID LAYERED DOUBLE HYDROXIDE (LDH) VIA CO-PRECIPITATION AND IT'S CONTROLLED RELEASE ACTIVITIES

Layered double hydroxide or hydrotalcite-like compound is a material that can be used to as a support for controlled release formulation and become an ideal solution to solve environmental problem arise from agrochemical. In this study, synthesis of CaAl-3, 4 Dichlorophenoxyacetic acid was successfully attained by the co-precipitation method with the molar ration of Ca to Al; R=2 at different concentration of 3,4-Dichlorophenoxyacetic acid. The pH for synthesis this nanocomposites is 13 ± 0.05 and kept in constant. The result obtained from the PXRD spectra showed that the basal spacing for the nanocomposite was increased from 8.76 Å to 15.47 Å. Other than that, FTIR spectrum of the synthesis of CaAl-3, 4-D nanocomposite showed the similarities of CaAl-LDH and the pure 3,4-D absorption bands which confirm the 3,4-D inserted into LDH interlayer. Besides that, there were also disappearance of the nitrate peak and formation of new peak which indicates the C=O stretching. For controlled release study, 3,4-D more efficient release in aqueous solution of Na_2CO_3 compare to NaCl with percentage release is 20.65%.