Fluorescence metal scavenging composite of cellulose and alginic acids

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A microwave assisted synthesis of a water soluble fluorogenicinterpolymericdiamide has been studied involving alginic acid and polyglucuronic acid (PGA) amide of ethylenediamine (EDA), through amonoamide of PGA and EDA. PGA was prepared by TEMPO(2,2,6,6-tetramethyl piperidine-1-oxyl radical) mediated oxidation of cellulose of the halophytic plantSalicorniabrachiata. The amides were characterized by spectral analyses. The fluorescence emission ofthe PGA amide was 7-fold greater than that of the interpolymericdiamide. PGA monoamide exhibitedsuperior heavy metal ions [Pb(Ⅱ) and Hg(Ⅱ)] uptake properties to the diamide, the former showingoptimum adsorptions of ions 398.8 and 282.8 mg/g, respectively. These materials may be of utility aspotential sensors harnessing their fluorogenic and metal scavenging properties.