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Hystatin is a group of compounds resulted from the derivatization of aaptamine. A series of hystatin derivatives (3, 5 and 9-17) have been synthesized and characterized by the typical spectroscopic technique, namely IR, ^{1}H and ^{13}C NMR, UV-Vis and Mass Spectroscopic. The synthesized compounds were evaluated for their antibacterial activity against selected bacterial strains of both Gram positive and Gram negative groups, namely *Bacilluscereus*, *Staphylococcusaureus*, *Micrococcus*sp, *Escherichiacoli*, *Pseudomonasaeruginosa*and*Klebsiellapneumoniae* by using standard microbiological protocol of disc-diffusion method. The antibacterial activities of the compounds were assessed by the presence and absence of inhibition zones and minimum inhibition concentration (MIC) values. In general, most of the derivatives showed significant antibacterial activity towards Gram positive bacteria. It was observed that compound 11 exhibited bacterial inhibition activity against all tested bacteria. Nonetheless, compounds 5 and 17 showed no antibacterial activities towards both Gram positive and Gram negative bacteria.
Keywords: Hystatin derivative; antibacterial; Disc-diffusion method

KO06. SYNTHESIS,CHARACTERIZATION AND CATALYTIC APPLICATION OF LANTHANUM MODIFIED MCM-41 IN HENRY REACTION: INVESTIGATION ON TEMPERATURE EFFECT

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The Henry reaction is considered as a base-catalyzed reaction using homogeneous catalyst but there is a difficulty in separation of the catalyst from the product in this method. Therefore, most researches done to date have focused on finding appropriate heterogeneous catalyst to settle the mentioned problem. In this research, mesoporous silica MCM-41 was prepared under basic condition (pH≈10) by using cetyltrimethyl ammonium bromide as template and rice husk ash (RHA) as silica source by means of hydrothermal method. A series of lanthanum-containing MCM-41 (La-MCM-41) with 3 wt.%, 5 wt.% and 10 wt.% loading of lanthanum(?), respectively, was synthesized by incorporation of $La(NO_3)_3.6H_2O$ as the lanthanum source into the pure silica MCM-41 matrix via wet-impregnation approach and subsequent thermal treatment. The prepared materials were characterized by means of Fourier Transform Infrared Spectroscopy (FTIR) and powder X-ray diffraction (XRD), Field Emission Scanning Electron Microscopy (FESEM), Brunauer-Emmett-Teller (BET) and Transmission electron microscopy (TEM) techniques. The catalytic activity of La-MCM-41 as basic catalyst for selective Henry reaction (see Scheme 1) in different temperatures was explored. Products of the reaction were identified using Gas Chromatography (GC) and Gas Chromatography-Mass Spectroscopy (GCMS). Results indicate rising in efficiency and speed of reaction by increasing the temperature. In addition, effect of the different temperatures on the stability of catalysts was also investigated.
Keywords: MCM-41; Henry reactio; Mesoporous catalist; Lanthanum; Tempreture

KO07. ENHANCED PHOTOCATALYTIC ACTIVITY OF SILVER DEPOSITED ON MESOPOROUS CARBON NITRIDE FOR REMOVAL OF PHENOL AND ANILINE

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In this study, mesoporous carbon nitride (MCN) as a visible light-driven photocatalyst was used to remove phenol and aniline as the models of organic pollutants. The MCN was successfully prepared via thermal polymerization of cyanamide. XRD patterns and FTIR spectra confirmed the successful formation of graphitic carbon nitride. The prepared MCN showed a larger percentage

removal of phenol (18.6%) than that of aniline (12.7%). In order to improve the photocatalytic activity of MCN, silver (Ag) was added via photodeposition method. The activity of MCN increased from 18.6% to 27.2% for removal of phenol on Ag/MCN (ratio 1:1) photocatalyst and from 12.7% to 19.8% for removal of aniline on Ag/MCN (ratio 1.5:1) photocatalyst. This study showed the role of Ag as a good co-catalyst to trap electrons that enhanced the activity of theMCN.
Keywords: MCN; phenol; aniline, photocatalyst; silver; co-catalyst

KO08. LEVELS OF PESTICIDE RESIDUES IN THE SURFACE WATER OF BERTAM RIVER CAMERON HIGHLANDS, PAHANG

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The presences of pesticides residue present in the surface water of Bertam River, Cameron Highlands in agriculture area, Pahang Malaysia was monitored from Mei 2014 to October 2014. The sampling sites were located at 10 sampling point along Bertam River in the agricultural area. The method of extraction of the insecticides (organophosphate/pyrethroid) from the water samples constituted solid phase extraction followed by gas chromatography (with electron capture detector, ECD). The insecticides, namely cypermethrin and chlorpyrifos were found in the surface water of Bertam River. High concentrations of insecticides in the surface water were observed during the period from May 2014 to October 2014, a period which included both seasons (wet and dry season). The highest concentration of 1.96 μg/mL and 0.17μg/mL of cypermtehrin was observed during the wet and dry season respectively. This could be due to the frequent usage of the above-mentioned insecticides plus contamination could originated from the application sites.Meanwhile, the lowest concentrations detected in the surface water was chlorpyrifos (0.09μg/mL and 0.17 μg/mL) during the dry and wet seasons respectively.
Keywords: Pesticide; environmental analysis; insecticide; gas chromatography

KO09. PREPARATION, CHARACTERIZATION AND ANTIMICROBIAL ACTIVITY OF COTTON/ALUMINA/TITANIA NANOCOMPOSITE

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Cotton has been considered as a good wound dressing due to its positive properties such as, good flexibility. However, as cotton itself lack antimicrobial ability, improvement and modification would have to be done in order to improve the antimicrobial properties of cotton. In this work, alumina and titania nanoparticles were attached to pristine cotton in order to be used as wound dressing. Alumina was chosen due to its high ability to scavenge reactive oxygen species (ROS), while titania is well-known for its antimicrobial properties. The synthetize cotton/alumina/titania nanocomposite were characterized by using Fourier transform infrared spectroscopy (FTIR), X-ray diffraction (XRD), energy dispersive x-ray spectroscopy (EDX) and field emission scanning electron microscopy (FESEM). XRD and FTIR result showed the presence of alumina and titania on the surface of cotton. The attachment of alumina and titania nanoparticle on the surface of cotton was further confirm by the result of FESEM and EDX. The antimicrobial activity of this nanocomposite was then tested out in liquid broth (LB) and agar medium against gram negative bacteria, Escherichia coli (*E.coli*).
Keywords: cotton; alumina; titania; nanocomposite; antimicrobial; nanoparticle; Escherichia coli