

LIST OF ABBREVIATIONS

^{13}C ssNMR	^{13}C solid state nuclear magnetic resonance
^{13}C	carbon-13
^1H	proton
<i>aBET</i>	surface area values
Ag(I)	argentum(I)
Al	aluminium
ANN	artificial neural network
ATR	Universal diamond attenuated total reflectance
<i>B</i>	percentage of biosorption
BE	binding energy
BET	Brunauer Emmett Teller
BSE	back scattered electron
C	carbon
Ca, Ca(II)	calcium
Cd(II)	cadmium(II)
CHNS	carbon, hydrogen, nitrogen, sulphur
CHNSO	carbon, hydrogen, nitrogen, sulphur, oxygen
Co(II)	cobalt(II)
CPMAS	Cross polarization
Cr(III)	chromium(III)
Cr(VI)	chromium(VI)
Cu Cu(II)	copper(II)
CuSO ₄	copper(II) sulphate anhydrous salt
<i>dBET</i>	mean apparent diameter

DP Invrec	direct pulse inversion recovery
DP SatRec	direct pulse saturation recovery
EDX	energy dispersive X-ray
Fe	ferum
FTIR	fourier transformed infrared spectroscopy system
H	hydrogen
HCl	hydrochloric acid
HNO ₃	nitric acid
i.e.	that is
ICP-OES	Inductively coupled plasma - optical emission
MAS	magic angle spinning
m.s.e	mean square error
Mg, Mg(II)	magnesium
Mn	manganese
n	time
N	nitrogen
Na	sodium
NaOH	sodium hydroxide
Ni(II)	nickel (II)
Ni(NO ₃) ₂ . 6H ₂ O n	nickel (II) nitrate hexahydrate salt
NW-PSMC	non-washed pre-treated biosorbent
O	oxygen
Pb(NO ₃) ₂	lead(II) nitrate salt
Pb(OH) ⁺	ion lead(II) hydroxide
Pb(OH) ₂	lead(II) hydroxide
Pb, Pb(II), Pb ²⁺	lead(II)

Perodua Manufacturing Sdn. Bhd.	Perusahaan Automobil Kedua Sdn. Bhd.
PSMC	<i>Pleurotus ostreatus</i> spent mushroom substrate compost
PTFE	polytetrafluoroethylen
R	matrix of the PSMC biosorbent
R- PSMC	raw <i>Pleurotus ostreatus</i> spent mushroom substrate compost
RSM	response surface methodology
s.s.e	sum square error
SD	standard deviation
SE	secondary electron
SEM	scanning electron microscopy
SEM/EDX	scanning electron microscopy combined with energy dispersive X-ray
Std. dev.	standard deviation
T_1	relaxation time
T_1^H	1H spin-locked spin-lattice relaxation time
TEM	transmission electron microscopy
USEPA	United State Environmental Protection Agency
UPW	ultra pure water
VCT data – TCH	cross polarization rate constant
WHO	World Health Organisation
XPS	X-ray photoelectron spectrometer
XRD	X-ray diffraction
Zn, Zn(II)	Zn(II)
ΔG	Gibbs free energy
ΔH	enthalpy

ΔS

entropy