

APPENDIX

Appendix Table 1 List of chemicals used in this study

Chemicals	Formula	Molecular weight (g/mol)	Purity (%)	Company
Acetic acid	CH ₃ COOH	60.05	100.0 Anala R	BDH Chemicals Ltd, Poole, England
Acetonitrile	CH ₃ CN	41.05	99.9	Merck, Darmstadt, Germany
8-Amino-1-Naphthol-3,6-disulfonic acid disodium salt	C ₁₀ H ₇ NNa ₂ O ₇ S ₂	363	65.0 – 80.0	Fluka, Buchs, Switzerland
1-Aminonaphthalene	C ₁₀ H ₉ N	143.187	98.0	Merck, Darmstadt, Germany
3-aminophenol	(NH ₂)C ₆ H ₄ OH	109.13	98.0	Merck, Darmstadt, Germany
Ammonium acetate	CH ₃ COONH ₄	77.08	96.0	Merck, Darmstadt, Germany
Ammonium sulfate	(NH ₄) ₂ SO ₄	132.14	99.0	Merck, Darmstadt, Germany
Benzidine	C ₁₂ H ₁₂ N ₂	184.2404	98.0	Promochem GmbH, wesel, Germany

Appendix Table 1 (Cont'd)

Chemicals	Formula	Molecular weight (g/mol)	Purity (%)	Company
Benzoic acid	$\text{C}_6\text{H}_5\text{COOH}$	122.12	99.5	BDH Chemicals Ltd, Poole, England
3,3'-Dimethoxybenzidine	$[(\text{C}_6\text{H}_3(\text{OCH}_3)\text{NH}_2)_2]$	244.30	97.0	Aldrich, Steinheim, Switzerland
Ethyl acetate	$\text{CH}_3\text{COOC}_2\text{H}_5$	88.11	99.9	J.T. Baker, Phillipsburg, USA
Formic acid	HCOOH	46.026 (density=1.198)	85.0	Carlo Erba, Rodano, Italy
Hydrochloric acid	HCl	36.46 (density = 1.19)	37.0 pro analysis	Merck, Darmstadt, Germany
Maleic acid	$\text{C}_4\text{H}_4\text{O}_4$	116.07	99.0	M&B LTD., Dagenham, England
Methanol	CH_3OH	32.04	99.9	Merck, Darmstadt, Germany

Appendix Table 1 (Cont'd)

Chemicals	Formula	Molecular weight (g/mol)	Purity (%)	Company
Naphthalene-1,3,6-trisulfonic acid trisodium salt	$C_{10}H_5Na_3O_9S_3$	434.31	80.0	Fluka, Buchs, Switzerland
1-Naphthol	$C_{10}H_8O$	144.17	99.0	Merck, Darmstadt, Germany
1,4-Naphthoquinone	$C_6H_4COCH.CHCO$	158.16	97.0	Fluka, Buchs, Switzerland
Nitric acid	HNO_3	63.01 (density = 1.42)	70.0 AR grade	Lab-Scan, Bangkok, Thailand
Oxalic acid	$C_2H_2O_4.2H_2O$	126.07	99.0	Merck, Darmstadt, Germany
Phenol	C_6H_5OH	94.11	99.2	J.T.Baker, Phillipsburg, USA
Phthalic acid	$C_8H_6O_4$	166.133	-	-
Sodium acetate	CH_3COONa	82.03	99.0	Merck, Darmstadt, Germany
Sodium borohydride	$NaBH_4$	37.83	96.0	Fluka Chemica, Steinheim, Switzerland

Appendix Table 1 (Cont'd)

Chemicals	Formula	Molecular weight (g/mol)	Purity (%)	Company
Sodium hydroxide	NaOH	39.997	97.0	Carlo Erba, Rodano, Italy
Sodium Nitrate	NaNO ₃	84.995	99.5	Carlo Erba, Milano, Italy
Sodium Nitrite	NaNO ₂	69.00	Extra pure	Merck, Darmstadt, Germany
Sodium oxalate	(COONa) ₂	134.00	99.8	Carlo Erba, Milano, Italy
Sodium sulfate	Na ₂ SO ₄	142.04	99.0	Merck, Darmstadt, Germany
Sodium sulfite	Na ₂ SO ₃	126.00	99.0	Merck, Darmstadt, Germany
Succinic acid	C ₄ H ₆ O ₄	118.089	99.0	M&B LTD., Dagenham, England
Tartaric acid	H ₂ C ₄ H ₄ O	150.0878	AR grade	Mallinckrodt, Paris, KY, USA
Tetrachloroauric (III) acid	HAuCl ₄ .3H ₂ O	394.26	-	Merck, Darmstadt, Germany

Appendix Table 1 (Cont'd)

Chemicals	Formula	Molecular weight (g/mol)	Purity (%)	Company
Titanium dioxide	TiO ₂	79.899	Analytical grade reagent	Carlo Erba, Milano, Italy
o-Toluidine	CH ₃ C ₆ H ₄ NH ₂	107.16	99.0	Aldrich, Steinheim, Switzerland
Trypan Blue	C ₃₄ H ₂₄ N ₆ Na ₄ O ₁₄ S ₄	960.79	-	Aldrich, Steinheim, Switzerland
Urea	NH ₂ CONH ₂	60.06	99.0	Fluka, Buchs, Switzerland

CURRICULUM VITAE

NAME : Miss. Pimporn Phoacharn
BIRTH DATE : January 20, 1980
BIRTH PLACE : Petchaburi
EDUCATION : YEAR INSTITUTION DEGREE/DIPLOMA
2003 Kasetsart Univ. B.Sc. (Chemistry)
POSITION/TITLE : -
WORK PLACE : -
SCHOLARSHIP/AWARDS : Postgraduate Education and Research
Program in Chemistry (PERCH)