APPENDIX 1

Modified Hoagland's nutrient solution

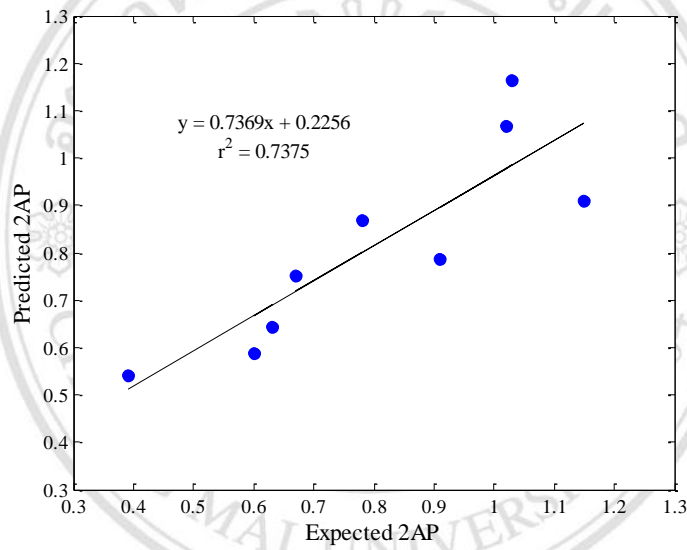Table A1 Chemicals and concentrations of the nutrient solution for rice

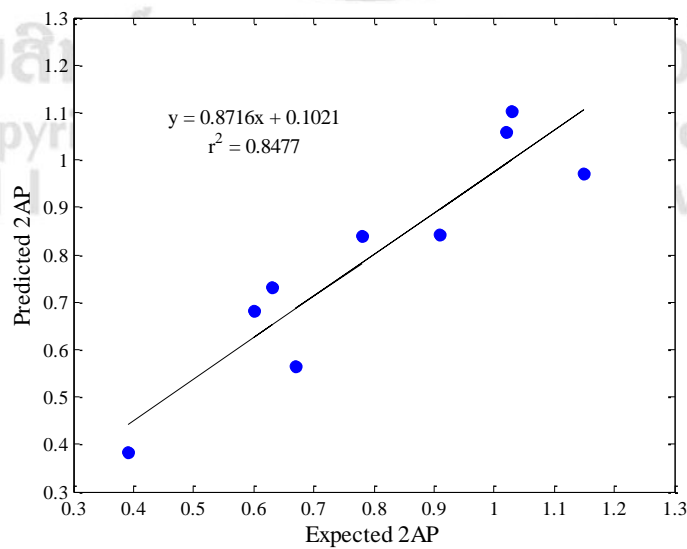| Chemical	Nutrient	ppm
KH_2PO_4	K	39.14
	P	31
KNO_3	K	194.86
	N	69.82
$Ca(NO_3)_2$	Ca	200
	N	69.91
$MgSO_4$	Mg	48
H_3BO_3	B	0.5
$MnSO_4$	Mn	0.5
$ZnSO_4$	Zn	0.05
$CuSO_4$	Cu	0.02
H_2MoO_4	Mo	0.01
	N	0.000209
Fe-EDTA	Fe	5
$MnCl_2$	Mn	0.5

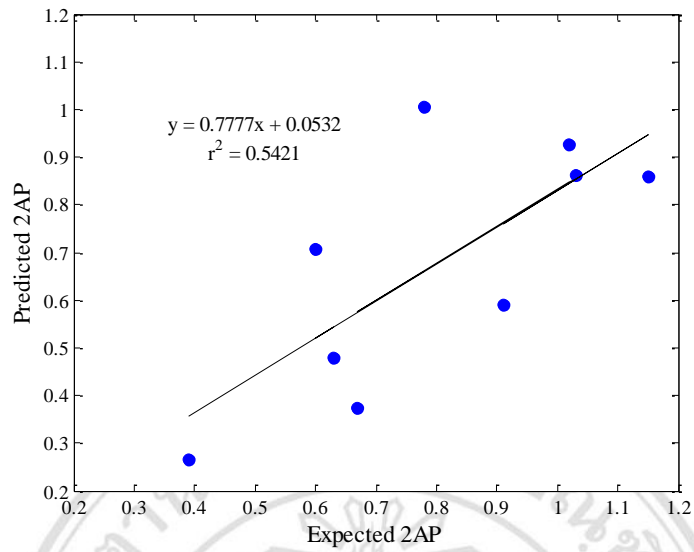# APPENDIX 2

Predictive results of PLS using data preprocessing

Figure A1 The predictive results of the PLS modeling using (a) raw data, (b) square root scaling and mean centring and (c) standardization

$$y = 0.7369x + 0.2256$$
$$r^2 = 0.7375$$

(a) None

$$y = 0.8716x + 0.1021$$
$$r^2 = 0.8477$$

(b) Square root scaling and mean centring

(c) Standardization

Table A2 RMSE and Q^2 from predictive results of PLS

Data Preprocessings	RMSECV	Q^2
None	0.1206	0.7330
Square root and centring	0.0913	0.8470
Standardization	0.2142	0.1569

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Publications

S. Funsueb, C. Krongchai, S. Mahatheeranont, S. Kittiwachana, "Prediction of 2-acetyl-1-pyrroline content in grains of Thai Jasmine rice based on planting condition, plant growth and yield component data using chemometrics", Chemom. Intell. Lab. Syst., 156 (2016), 203-210.

S. Funsueb, G. Sudtasarn, S. Kittiwachana, "Determination of Amylose Contents in Rice Grains Using Near Infrared Reflectance Spectroscopy (NIRS) and Supervised Self-Organizing Map (SOM)", Proceedings of the Pure and Applied Chemistry International Conference 2016 (PACCON 2016), BITEC, Bangkok, Thailand 9th-11th February 2016, 116-120.

Experience

National poster presentation

1. Determination of Amylose Contents in Rice Grains Using Near Infrared Reflectance Spectroscopy (NIRS) and Supervised Self-Organizing Map (SOM), the Pure and Applied Chemistry International Conference 2016 (PACCON 2016), BITEC, Bangkok, Thailand 9th-11th February 2016

International oral presentation

1. Prediction of 2-Acetyl-1-Pyrroline (2AP) Content in a Thai Jasmine Rice (*Oryza sativa* L. ssp. *indica* cv. Pathum Thani 1; PT1) Using a Statistic Design and Chemometrics, 15th Chemometrics in Analytical Chemistry, Changsha, China, 22nd-26th June 2015.