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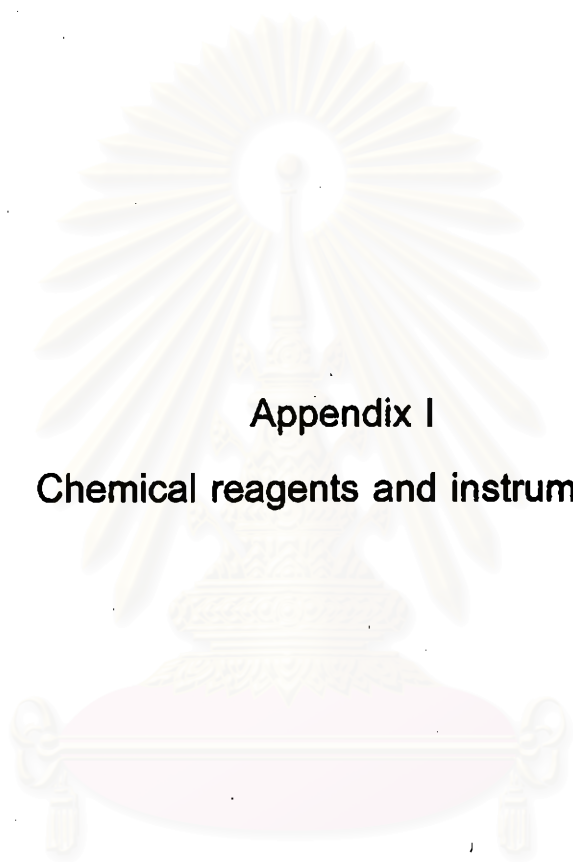
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สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย



Appendix I

Chemical reagents and instruments

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

Reagents

- 1%Alcoholic Eosin

<i>Preparation</i> : Eosin Y, water- and alcohol-soluble	10 g.
Distilled water	50 ml.
Dissolve the eosin thoroughly in the water and then add	
95% Ethanol	940 ml.

- Bouin's fixative

<i>Preparation</i> : Glacial acetic acid	50 ml.
40% Formaldehyde	250 ml.
Picric acid (sat. aq.)	750 ml.

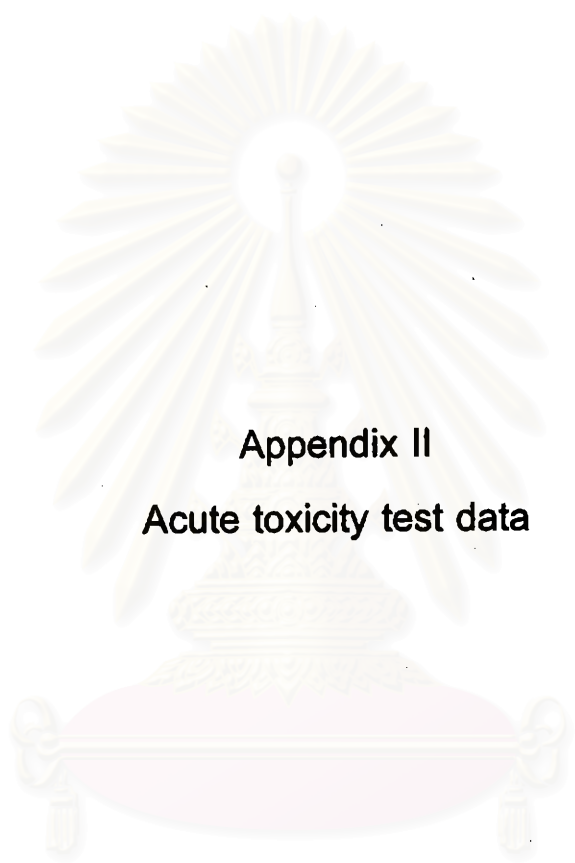
- 1-Butanol : Merck, Germany
- Ethanol : Merck, Germany
- Ethanol Absolute : Merck, Germany
- Glycerol, Anhydrous : J.T. Baker Chemicals, USA
- Mayer's Hematoxylin

<i>Preparation</i> : Hematoxylin	1 g.
Distilled water	1000 ml.
Sodium iodate	0.2 g.
Ammonium or potassium alum	50 g.
Citric acid	1 g.
Chloral hydrate	50 g.

- Paraplast plus® : Oxford Labware, USA
- Permount® : Fisher Scientific, USA
- Xylene : Merck, Germany

Instruments

- Air Pump : Daivo Air Pump, Japan
- Color negative film : Eastman Kodak Company, USA
- Cover slips : Menzel-Glaser, Germany
- Scintillation vials : Wheaton, England
- DO meter : YSI model 51B, YSI Incorporated, USA
- Electric balance : Sartorius, Scientific Promotion Co. Ltd., Thailand
- Carbon-resin filter : Dema, Praneephan Co.Ltd., Thailand
- Filter papers : Whatman, England
- 325-L Glass aquarium : Asia Industrial Co. Ltd., Thailand
- 14-L Glass jar : Commercial source, Thailand
- Laboratory oven : Charles Hearson and Co. Ltd., England
- Light microscope : Olympus, Japan
- Microscope slides : Shanghai Machinery Import and Export Company, China
- pH meter : Philips, England
- Pipette : Brand, Germany
- Rotary microtome : AO, USA
- Slide warmer : Sakura Finetechnical Co.Ltd., Japan
- Stereomicroscope : Olympus, Japan
- Surgical blades : Feather, Japan
- Surgical scissors and forceps : PT Germany Stainless, Germany
- Thermometer : Brannan, England
- Timer : ECS, Germany
- Vacuum heater : National Appliance Company, USA
- Water Pump : Simaco, Italy



Appendix II

Acute toxicity test data

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

24-hour

***** PROBIT ANALYSIS *****

DATA Information

9 unweighted cases accepted.
 0 cases rejected because of missing data.
 0 cases are in the control group.
 0 cases rejected because LOG-transform can't be done.

MODEL Information

ONLY Normal Sigmoid is requested.

***** PROBIT ANALYSIS *****

Parameter estimates converged after 10 iterations.
 Optimal solution found.

Parameter Estimates (PROBIT model: (PROBIT(p)) = Intercept + BX):

	Regression Coeff.	Standard Error	Coeff./S.E.
CONCENTR	10.80753	1.59549	6.77379

	Intercept	Standard Error	Intercept/S.E.
	-18.04866	2.68862	-6.71298

Pearson Goodness-of-Fit Chi Square = 25.046 DF = 7 P = .001

Since Goodness-of-Fit Chi square is significant, a heterogeneity factor is used in the calculation of confidence limits.

***** PROBIT ANALYSIS *****

Observed and Expected Frequencies

CONCENTR	Number of Subjects	Observed Responses	Expected Responses	Residual	Prob
1.48	15.0	.0	.278	-.278	.01855
1.54	15.0	.0	1.301	-1.301	.08674
1.60	15.0	8.0	3.470	4.530	.23137
1.65	15.0	8.0	6.420	1.580	.42798
1.70	15.0	6.0	9.343	-3.343	.62286
1.74	15.0	7.0	11.647	-4.647	.77648
1.78	15.0	15.0	13.181	1.819	.87875
1.81	15.0	15.0	14.081	.919	.93876
1.85	15.0	15.0	14.562	.438	.97077

***** PROBIT ANALYSIS *****

Confidence Limits for Effective CONCENTR

Prob	CONCENTR	95% Confidence Limits	
		Lower	Upper
.01	28.49416	10.01638	35.97261
.02	30.19805	11.85012	37.35993
.03	31.33157	13.17910	38.28194
.04	32.21222	14.27275	38.99990
.05	32.94680	15.22615	39.60108
.06	33.58521	16.08522	40.12614
.07	34.15515	16.87604	40.59756
.08	34.67367	17.61499	41.02918
.09	35.15207	18.31312	41.43017
.10	35.59827	18.97827	41.80696
.15	37.50673	21.97108	43.45932
.20	39.09622	24.63343	44.90887
.25	40.51344	27.11645	46.28752
.30	41.82988	29.48984	47.67297
.35	43.08791	31.78729	49.12771
.40	44.31662	34.02152	50.71425
.45	45.53876	36.19055	52.50314
.50	46.77442	38.28241	54.57751
.55	48.04361	40.28138	57.03496
.60	49.36852	42.17676	59.98864
.65	50.77634	43.97166	63.57303
.70	52.30343	45.68839	67.96346
.75	54.00297	47.37000	73.42192
.80	55.96056	49.08349	80.39584
.85	58.33210	50.93540	89.75771
.90	61.45935	53.13120	103.55499
.91	62.23948	53.64772	107.24955
.92	63.09821	54.20480	111.43273
.93	64.05611	54.81353	116.24318
.94	65.14314	55.48989	121.88704
.95	66.40543	56.25829	128.68924
.96	67.91975	57.15903	137.20505
.97	69.82882	58.26629	148.50086
.98	72.44992	59.74316	165.04748
.99	76.78227	62.09505	195.11304

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48-hour

***** PROBIT ANALYSIS *****

DATA Information

9 unweighted cases accepted.
 0 cases rejected because of missing data.
 0 cases are in the control group.
 0 cases rejected because LOG-transform can't be done.

MODEL Information

ONLY Normal Sigmoid is requested.

***** PROBIT ANALYSIS *****

Parameter estimates converged after 15 iterations.
 Optimal solution found.

Parameter Estimates (PROBIT model: (PROBIT(p)) = Intercept + BX):

	Regression Coeff.	Standard Error	Coeff./S.E.
CONCENTR	10.78649	1.66105	6.49378

	Intercept	Standard Error	Intercept/S.E.
	-17.28609	2.72046	-6.35410

Pearson Goodness-of-Fit Chi Square = 11.079 DF = 7 P = .135

Since Goodness-of-Fit Chi square is significant, a heterogeneity factor is used in the calculation of confidence limits.

***** PROBIT ANALYSIS *****

Observed and Expected Frequencies

CONCENTR	Number of Subjects	Observed Responses	Expected Responses	Residual	Prob
1.48	15.0	.0	1.320	-1.320	.08801
1.54	15.0	4.0	3.960	.040	.26402
1.60	15.0	11.0	7.467	3.533	.49781
1.65	15.0	12.0	10.613	1.387	.70756
1.70	15.0	10.0	12.762	-2.762	.85079
1.74	15.0	13.0	13.971	-.971	.93140
1.78	15.0	15.0	14.563	.437	.97088
1.81	15.0	15.0	14.825	.175	.98036
1.85	15.0	15.0	14.933	.067	.99555

***** PROBIT ANALYSIS *****

Confidence Limits for Effective CONCENTR

Prob	CONCENTR	95% Confidence Limits	
		Lower	Upper
.01	24.37226	14.78198	29.65240
.02	25.83260	16.42897	30.91372
.03	26.80418	17.56429	31.74806
.04	27.55907	18.46742	32.39464
.05	28.18877	19.23436	32.93341
.06	28.73607	19.91066	33.40161
.07	29.22468	20.52183	33.81981
.08	29.66921	21.08375	34.20067
.09	30.07937	21.60702	34.55258
.10	30.46193	22.09911	34.88137
.15	32.09829	24.24433	36.29764
.20	33.46129	26.07404	37.49692
.25	34.67666	27.72979	38.59020
.30	35.80567	29.27992	39.63458
.35	36.88465	30.76329	40.66759
.40	37.93855	32.20423	41.71936
.45	38.98686	33.61882	42.81849
.50	40.04683	35.01801	43.99572
.55	41.13562	36.40966	45.28699
.60	42.27227	37.80046	46.73651
.65	43.48011	39.19852	48.40085
.70	44.79036	40.61736	50.35562
.75	46.24866	42.08184	52.70908
.80	47.92848	43.63805	55.63326
.85	49.96368	45.37439	59.44351
.90	52.64765	47.48378	64.84705
.91	53.31724	47.98598	66.25431
.92	54.05431	48.52977	67.82862
.93	54.87653	49.12632	69.61491
.94	55.80961	49.79183	71.67913
.95	56.89318	50.55107	74.12402
.96	58.19313	51.44503	77.12248
.97	59.83204	52.54934	81.00068
.98	62.08237	54.03071	86.49710
.99	65.80222	56.40763	96.00050

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72-hour

***** PROBIT ANALYSIS *****

DATA Information

9 unweighted cases accepted.
 0 cases rejected because of missing data.
 0 cases are in the control group.
 0 cases rejected because LOG-transform can't be done.

MODEL Information

ONLY Normal Sigmoid is requested.

***** PROBIT ANALYSIS *****

>Warning # 13527

>Parameter estimates did not converge in maximum number of iterations.

Number of iterations = 20
 Optimal solution not found.

Parameter Estimates (PROBIT model: (PROBIT(p)) = Intercept + BX):

	Regression Coeff.	Standard Error	Coeff./S.E.
CONCENTR	13.49795	2.21621	6.09054
Intercept		Standard Error	Intercept/S.E.
	-21.39229	3.56856	-5.99465

Pearson Goodness-of-Fit Chi Square = 8.070 DF = 7 P = .326

Since Goodness-of-Fit Chi square is NOT significant, no heterogeneity factor is used in the calculation of confidence limits.

***** PROBIT ANALYSIS *****

Observed and Expected Frequencies

CONCENTR	Number of Subjects	Observed Responses	Expected Responses	Residual	Prob
1.48	15.0	.0	1.094	-1.094	.07295
1.54	15.0	5.0	4.365	.635	.29098
1.60	15.0	11.0	8.877	2.123	.59182
1.65	15.0	13.0	12.329	.671	.82192
1.70	15.0	12.0	14.074	-2.074	.93826
1.74	15.0	15.0	14.731	.269	.98209
1.78	15.0	15.0	14.932	.068	.99546
1.81	15.0	15.0	14.984	.016	.99896
1.85	15.0	15.0	14.997	.003	.99978

***** PROBIT ANALYSIS *****

Confidence Limits for Effective CONCENTR

Prob	CONCENTR	95% Confidence Limits	
		Lower	Upper
.01	25.85273	20.65262	29.15885
.02	27.08332	22.09358	30.23686
.03	27.89429	23.05659	30.94535
.04	28.52032	23.80666	31.49177
.05	29.03990	24.43330	31.94526
.06	29.48959	24.97843	32.33794
.07	29.88960	25.46538	32.68755
.08	30.25237	25.90850	33.00497
.09	30.58612	26.31734	33.29740
.10	30.89658	26.69859	33.56987
.15	32.21589	28.32659	34.73433
.20	33.30449	29.67539	35.70729
.25	34.26769	30.86817	36.58199
.30	35.15638	31.96380	37.40483
.35	36.00046	32.99576	38.20465
.40	36.82013	33.98545	39.00273
.45	37.63093	34.94784	39.81738
.50	38.44630	35.89445	40.66643
.55	39.27935	36.83520	41.56910
.60	40.14430	37.77999	42.54777
.65	41.05832	38.74042	43.63027
.70	42.04409	39.73220	44.85367
.75	43.13446	40.77892	46.27142
.80	44.38195	41.91931	47.96885
.85	45.88166	43.22394	50.10132
.90	47.84083	44.84546	53.01152
.91	48.32644	45.23598	53.75147
.92	48.85958	45.66037	54.57148
.93	49.45259	46.12751	55.49249
.94	50.12340	46.65029	56.54507
.95	50.89957	47.24845	57.77642
.96	51.82684	47.95462	59.26532
.97	52.98998	48.82899	61.15875
.98	54.57669	50.00411	63.78493
.99	57.17456	51.89167	68.18416

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96-hour

***** PROBIT ANALYSIS *****

DATA Information

9 unweighted cases accepted.
0 cases rejected because of missing data.
0 cases are in the control group.
0 cases rejected because LOG-transform can't be done.

MODEL Information

ONLY Normal Sigmoid is requested.

***** PROBIT ANALYSIS *****

>Warning # 13527
>Parameter estimates did not converge in maximum number of iterations.

Number of iterations = 20
Optimal solution not found.

Parameter Estimates (PROBIT model: (PROBIT(p)) = Intercept + BX):

	Regression Coeff.	Standard Error	Coeff./S.E.
CONCENTR	21.92816	4.61666	4.74979
Intercept		Standard Error	Intercept/S.E.
	-34.19607	7.23413	-4.72705

Pearson Goodness-of-Fit Chi Square = 1.568 DF = 7 P = .980

Since Goodness-of-Fit Chi square is NOT significant, no heterogeneity factor is used in the calculation of confidence limits.

***** PROBIT ANALYSIS *****

Observed and Expected Frequencies

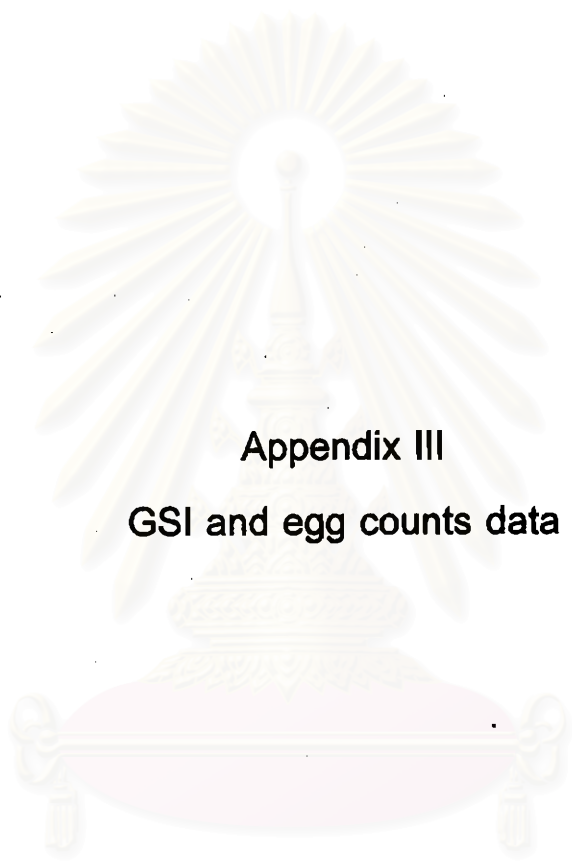
CONCENTR	Number of Subjects	Observed Responses	Expected Responses	Residual	Prob
1.48	15.0	.0	.532	-.532	.03550
1.54	15.0	7.0	5.518	1.482	.36787
1.60	15.0	12.0	12.373	-.373	.82489
1.65	15.0	15.0	14.702	.298	.98010
1.70	15.0	15.0	14.983	.017	.99889
1.74	15.0	15.0	14.999	.001	.99996
1.78	15.0	15.0	15.000	.000	1.00000
1.81	15.0	15.0	15.000	.000	1.00000
1.85	15.0	15.0	15.000	3.0002E-09	1.00000

***** PROBIT ANALYSIS *****

Confidence Limits for Effective CONCENTR

Prob	CONCENTR	95% Confidence Limits	
		Lower	Upper
.01	28.40336	23.44409	30.93023
.02	29.22814	24.58880	31.59691
.03	29.76381	25.34063	32.03146
.04	30.17324	25.91918	32.36495
.05	30.51043	26.39788	32.64078
.06	30.80039	26.81096	32.87906
.07	31.05690	27.17730	33.09082
.08	31.28839	27.50853	33.28284
.09	31.50041	27.81232	33.45958
.10	31.69685	28.09405	33.62416
.15	32.52328	29.27986	34.32743
.20	33.19544	30.24063	34.91678
.25	33.78316	31.07288	35.44994
.30	34.31981	31.82183	35.95592
.35	34.82470	32.51246	36.45306
.40	35.31066	33.16014	36.95512
.45	35.78728	33.77516	37.47395
.50	36.26263	34.36510	38.02092
.55	36.74429	34.93637	38.60787
.60	37.24027	35.49537	39.24801
.65	37.75994	36.04956	39.95734
.70	38.31544	36.60866	40.75689
.75	38.92408	37.18641	41.67727
.80	39.61322	37.80392	42.76797
.85	40.43191	38.49766	44.12003
.90	41.48609	39.34381	45.93443
.91	41.74480	39.54517	46.39052
.92	42.02768	39.76299	46.89361
.93	42.34094	40.00156	47.45584
.94	42.69356	40.26711	48.09482
.95	43.09931	40.56913	48.83768
.96	43.58095	40.92327	49.72950
.97	44.18044	41.35824	50.85391
.98	44.99014	41.93696	52.39642
.99	46.29657	42.85315	54.93906

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Appendix III

GSI and egg counts data

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Data sheet of control (M4Cx) group (n=19).

Number	Body weight (g)	Body length (cm)	Ovary weight (g)	Ovary length (cm)	GSI
1	25.16	11.10	0.55	1.90	2.1860
2	23.61	10.60	0.32	1.60	1.3554
3	23.65	11.00	0.10	1.50	0.4228
4	26.64	11.50	0.08	2.00	0.3003
5	20.75	10.00	0.17	1.70	0.8193
6	27.91	11.60	0.14	2.40	0.5016
7	31.74	11.80	1.36	2.40	4.2848
8	18.83	10.30	0.94	2.20	4.9920
9	18.43	9.70	0.53	1.70	2.8757
10	34.11	12.00	0.79	2.80	2.3160
11	24.22	10.70	0.70	2.30	2.8902
12	24.96	10.80	1.11	2.40	4.4471
13	36.13	12.10	0.31	2.40	0.8580
14	29.83	11.40	0.88	2.30	2.9501
15	23.55	10.80	1.06	2.30	4.5011
16	23.25	10.40	0.68	2.00	2.9247
17	19.52	9.80	0.52	2.10	2.6639
18	20.67	10.50	0.19	1.70	0.9192
19	20.08	10.20	0.99	2.30	4.9303
Mean	24.90	10.86	0.60	2.11	2.4810
SE	1.17	0.17	0.09	0.08	0.3684

Data sheet of control (M5Cx) group (n=20).

Number	Body weight (g)	Body length (cm)	Ovary weight (g)	Ovary length (cm)	GSI
1	47.24	14.50	1.62	2.70	3.4293
2	35.99	12.50	0.69	2.40	1.9172
3	30.06	12.50	1.45	2.60	4.8237
4	31.03	12.50	1.61	2.60	5.1885
5	32.30	12.20	1.65	2.70	5.1084
6	52.43	15.00	2.86	3.20	5.4549
7	37.38	13.50	2.14	2.50	5.7250
8	33.46	12.50	0.41	2.70	1.2253
9	27.68	12.00	0.09	2.00	0.3251
10	21.90	11.50	1.32	2.40	6.0274
11	30.62	12.30	0.07	1.90	0.2286
12	20.43	11.20	0.84	2.20	4.1116
13	43.30	13.70	2.67	3.10	6.1663
14	30.36	12.50	0.91	2.30	2.9974
15	36.18	12.70	0.34	3.70	0.9397
16	21.36	11.00	0.69	2.50	3.2303
17	30.59	12.00	1.26	2.70	4.1190
18	29.90	12.10	2.07	2.40	6.9231
19	37.73	12.30	0.78	2.50	2.0673
20	18.26	10.60	0.82	2.00	4.4907
Mean	32.41	12.46	1.21	2.56	3.7249
SE	1.95	0.24	0.18	0.10	0.4568

Data sheet of control (M6Cx) group (n=21).

Number	Body weight (g)	Body length (cm)	Ovary weight (g)	Ovary length (cm)	GSI
1	31.76	13.00	1.96	2.90	6.1713
2	60.01	15.50	1.09	2.50	1.8164
3	59.32	15.00	3.11	3.50	5.2428
4	38.23	13.00	2.01	3.30	5.2577
5	35.80	13.30	2.58	2.90	7.2067
6	14.76	10.30	0.84	2.40	5.6911
7	24.70	11.50	1.23	2.70	4.9798
8	64.45	16.00	2.99	3.60	4.6393
9	44.70	14.50	1.85	3.20	4.1387
10	30.22	12.40	0.14	1.80	0.4633
11	23.07	11.20	1.16	2.50	5.0282
12	49.39	14.40	2.24	3.10	4.5353
13	38.24	14.30	1.13	2.50	2.9550
14	16.35	10.80	0.70	2.30	4.2813
15	14.99	10.50	0.30	2.10	2.0013
16	20.87	11.00	1.04	2.70	4.9832
17	49.08	15.00	2.81	2.90	5.7253
18	33.00	12.30	0.34	2.30	1.0303
19	21.88	11.20	0.06	2.00	0.2742
20	23.13	11.10	1.49	2.90	6.4419
21	25.65	11.70	0.92	3.00	3.5867
Mean	34.27	12.76	1.43	2.72	4.1167
SE	3.32	0.39	0.20	0.11	0.4327

Data sheet of control (M7Cx) group (n=21).

Number	Body weight (g)	Body length (cm)	Ovary weight (g)	Ovary length (cm)	GSI
1	28.41	11.80	0.36	1.90	1.2672
2	33.07	12.20	2.10	2.70	6.3502
3	35.85	12.80	2.64	3.00	7.3640
4	25.96	11.40	0.42	1.90	1.6179
5	46.28	13.40	1.79	3.00	3.8678
6	54.06	14.30	2.91	3.50	5.3829
7	49.56	14.20	0.83	2.00	1.6747
8	41.69	13.60	1.42	2.70	3.4061
9	37.78	13.10	0.75	2.60	1.9852
10	65.92	16.00	3.04	3.60	4.6117
11	43.66	13.30	2.03	2.70	4.6496
12	39.69	13.20	1.64	3.00	4.1320
13	47.40	13.10	1.94	3.00	4.0928
14	46.58	13.30	2.48	2.80	5.3242
15	42.81	13.80	1.91	3.00	4.4616
16	41.09	13.30	1.84	2.30	4.4780
17	34.99	12.10	1.67	2.80	4.7728
18	26.03	11.40	0.79	2.20	3.0350
19	26.26	11.40	1.24	2.50	4.7220
20	41.05	13.60	1.55	2.90	3.7759
21	30.84	12.10	1.58	2.40	5.1232
Mean	39.95	13.02	1.66	2.69	4.0997
SE	2.19	0.25	0.16	0.10	0.3377

Data sheet of neem treated (M4Nx) group (n=20).

Number	Body weight (g)	Body length (cm)	Ovary weight (g)	Ovary length (cm)	GSI
1	21.98	11.50	0.45	2.00	2.0473
2	14.99	10.00	0.91	2.00	6.0707
3	23.84	11.00	0.07	1.70	0.2936
4	20.58	11.00	0.24	1.80	1.1662
5	17.99	10.50	0.74	2.30	4.1134
6	15.15	9.50	0.04	1.50	0.2640
7	21.75	11.00	0.13	1.90	0.5977
8	16.39	11.00	0.25	1.90	1.5253
9	12.83	9.50	0.06	1.70	0.4677
10	14.36	9.50	0.52	2.00	3.6212
11	15.21	10.00	0.55	2.00	3.6160
12	16.36	10.00	0.20	1.70	1.2225
13	15.15	10.00	0.09	1.50	0.5941
14	10.64	9.00	0.03	1.60	0.2820
15	9.95	9.00	0.06	1.90	0.6030
16	11.16	9.00	0.12	1.80	1.0753
17	14.79	10.00	0.34	1.70	2.2989
18	21.26	10.50	0.09	2.00	0.4233
19	26.90	12.00	0.73	2.10	2.7138
20	16.18	10.50	0.10	1.30	0.6180
Mean	16.87	10.23	0.29	1.82	1.6807
SE	1.02	0.19	0.06	0.05	0.3581

Data sheet of neem treated (M5Nx) group (n=19).

Number	Body weight (g)	Body length (cm)	Ovary weight (g)	Ovary length (cm)	GSI
1	39.06	13.40	0.50	1.90	1.2801
2	20.64	10.60	1.10	2.50	5.3295
3	30.72	12.20	2.18	3.30	7.0964
4	26.97	11.40	0.32	2.00	1.1865
5	22.95	10.90	0.72	2.30	3.1373
6	29.93	11.50	1.32	2.50	4.4103
7	15.66	9.80	0.45	2.00	2.8736
8	22.06	10.40	0.87	2.40	3.9438
9	20.89	10.50	0.14	2.00	0.6702
10	20.41	10.50	0.44	2.00	2.1558
11	23.34	11.20	1.23	2.70	5.2699
12	14.98	9.60	0.45	2.10	3.0040
13	20.18	10.40	0.94	2.40	4.6581
14	27.88	12.20	0.71	2.20	2.5466
15	21.14	11.00	0.08	1.80	0.3784
16	33.31	12.50	1.59	3.20	4.7733
17	23.34	11.50	0.90	2.00	3.8560
18	13.67	9.60	0.15	1.90	1.0973
19	14.93	9.50	0.10	1.90	0.6698
Mean	23.27	10.98	0.75	2.27	3.0704
SE	1.54	0.25	0.13	0.10	0.4370

Data sheet of neem treated (M6Nx) group (n=20).

Number	Body weight (g)	Body length (cm)	Ovary weight (g)	Ovary length (cm)	GSI
1	30.98	12.20	0.94	2.90	3.0342
2	42.69	14.30	0.78	2.50	1.8271
3	29.87	12.70	1.84	2.70	6.1600
4	30.36	12.50	0.81	2.10	2.6680
5	18.74	10.50	0.73	2.30	3.8954
6	17.56	10.20	0.21	1.70	1.1959
7	45.17	14.30	1.98	3.10	4.3834
8	26.54	11.50	0.60	2.30	2.2607
9	24.14	9.40	0.28	1.60	1.1599
10	14.84	9.70	0.11	1.50	0.7412
11	15.80	10.00	0.03	1.70	0.1899
12	35.08	12.00	0.61	2.20	1.7389
13	26.86	10.70	1.41	2.60	5.2494
14	31.87	14.50	0.77	2.50	2.4161
15	39.92	11.20	1.46	2.90	3.6573
16	33.37	-	1.38	2.60	4.1355
17	20.03	10.50	0.45	2.10	2.2466
18	36.90	13.00	0.62	2.20	1.6802
19	18.43	10.50	0.07	1.40	0.3798
20	20.96	11.00	0.77	2.20	3.6737
Mean	28.01	11.62	0.79	2.26	2.6347
SE	2.04	0.36	0.13	0.11	0.3629

Data sheet of neem treated (M7Nx) group (n=21).

Number	Body weight (g)	Body length (cm)	Ovary weight (g)	Ovary length (cm)	GSI
1	18.13	10.30	1.01	2.30	5.5709
2	17.72	10.60	0.81	2.10	4.5711
3	14.26	10.20	0.69	1.20	4.8387
4	19.23	10.90	0.54	2.10	2.8081
5	17.58	9.50	1.14	2.10	6.4846
6	15.46	10.00	0.23	1.50	1.4877
7	12.01	9.50	0.31	1.80	2.5812
8	15.38	10.00	0.72	2.30	4.6814
9	11.88	9.00	0.65	1.90	5.4714
10	13.10	9.20	0.61	1.90	4.6565
11	28.38	12.10	0.75	2.00	2.6427
12	12.13	9.10	0.63	2.00	5.1937
13	13.12	9.60	0.72	2.00	5.4878
14	14.53	9.20	0.46	1.80	3.1659
15	13.83	9.70	0.68	1.90	4.9168
16	22.24	11.50	0.90	2.00	4.0468
17	25.24	12.20	0.14	1.60	0.5547
18	29.64	13.10	0.45	2.40	1.5182
19	35.23	13.20	1.49	2.90	4.2293
20	25.14	11.00	1.34	2.80	5.3302
21	21.29	11.80	0.61	2.30	2.8652
Mean	18.83	10.56	0.71	2.04	3.9573
SE	1.44	0.29	0.07	0.08	0.3471

Data sheet of 4th month control (M4Cx) group (n=19).

Number	GSI	Ovary wet weight (g)	Sample wet weight (g)	Oocyte count							Total oocyte count	Percentage of large oocyte
				Large		Intermediate		Small				
				Sample	Total	Sample	Total	Dry weight (g)	Sample	Total		
1	2.1860	0.28	0.14	67	134	54	108	0.0072	7271	14542	14784	0.91
2	1.3554	0.16	0.06	18	48	29	77	0.006	6059	16157	16282	0.29
3	0.4228	0.08	0.04	9	18	4	8	0.0064	6463	12926	12952	0.14
4	0.3003	0.031	0.0049	0	0	6	38	0.0023	2323	146965	147003	0.00
5	0.8193	0.0737	0.0243	20	61	35	106	0.0045	4544	13782	13949	0.44
6	0.5016	0.0587	0.0114	0	0	3	15	0.0029	2929	15082	15097	0.00
7	4.2848	0.442	0.0699	26	164	24	152	0.0102	10300	65130	65446	0.25
8	4.9920	0.4407	0.1224	41	148	11	40	0.0039	3938	14179	14367	1.03
9	2.8757	0.2625	0.0957	32	88	29	80	0.0107	10805	29637	29805	0.30
10	2.3160	0.3009	0.0562	36	193	47	252	0.0036	3635	19462	19907	0.97
11	2.8902	0.343	0.07	27	132	29	142	0.0022	2222	10888	11162	1.18
12	4.4471	0.4357	0.0773	31	175	52	293	0.0017	1717	9678	10146	1.72
13	0.8580	0.1175	0.028	23	104	23	104	0.001	1010	4564	4772	2.18
14	2.9501	0.415	0.0686	54	303	48	290	0.0023	2323	14053	14646	2.07
15	4.5011	0.3967	0.0974	27	110	90	367	0.0041	4140	16862	17339	0.63
16	2.9247	0.2788	0.0664	25	105	73	307	0.0017	1717	7209	7621	1.38
17	2.6639	0.269	0.0467	15	86	26	150	0.0016	1616	9308	9544	0.90
18	0.9192	0.0789	0.023	19	65	30	103	0.0009	909	3118	3286	1.98
19	4.9303	0.3554	0.0549	15	97	73	473	0.0004	404	2615	3185	3.05
Mean	2.4810	0.2537	0.0608	25.53	106.89	36.11	163.42	0.0039	3911.84	22429.32	22699.63	1.02
SE	0.3684	0.0333	0.0083	3.78	16.74	5.60	29.84	0.0007	694.12	7583.34	7570.99	0.20

Data sheet of 5th month control (M5Cx) group (n=20).

Number	GSI	Ovary wet weight (g)	Sample wet weight (g)	Oocyte count							Total oocyte count	Percentage of large oocyte
				Large		Intermediate		Small				
				Sample	Total	Sample	Total	Dry weight (g)	Sample	Total		
1	3.4293	0.68	0.1093	42	261	50	311	0.0076	7675	47749	48321	0.54
2	1.9172	0.3584	0.1053	41	140	19	65	0.0115	11613	39526	39731	0.35
3	4.8237	0.6231	0.1008	27	167	48	297	0.004	4039	24967	25431	0.66
4	5.1885	0.7481	0.1305	33	189	42	241	0.0037	3736	21417	21847	0.87
5	5.1084	0.699	0.1298	52	280	44	237	0.0064	6463	34805	35322	0.79
6	5.4549	0.8887	0.1418	43	270	52	326	0.0096	9695	60761	61357	0.44
7	5.7250	0.6372	0.152	45	189	77	323	0.0135	13633	57151	57663	0.33
8	1.2253	0.1764	0.028	28	176	29	183	0.0015	1515	9545	9904	1.78
9	0.3251	0.0363	0.0109	0	0	7	23	0.0007	707	2354	2377	0.00
10	6.0274	0.5596	0.1169	37	177	110	527	0.0039	3938	18853	19557	0.91
11	0.2286	0.0294	0.0041	0	0	0	0	0.0029	2929	21000	21000	0.00
12	4.1116	0.3311	0.0855	28	108	40	155	0.0007	707	2737	3000	3.60
13	6.1663	1.2354	0.2528	55	269	105	513	0.0107	10805	52804	53586	0.50
14	2.9974	0.423	0.0968	24	105	49	214	0.0163	16460	71929	72248	0.15
15	0.9397	0.1632	0.0391	34	142	46	192	0.0005	505	2108	2442	5.81
16	3.2303	0.247	0.0475	15	78	46	239	0.002	2020	10502	10819	0.72
17	4.1190	0.6234	0.0702	18	160	64	568	0.0023	2323	20626	21354	0.75
18	6.9231	0.6611	0.2317	79	225	116	331	0.0041	4140	11814	12370	1.82
19	2.0673	0.3471	0.1035	41	138	39	131	0.0078	7877	26416	26685	0.52
20	4.4907	0.4705	0.1285	40	147	49	179	0.01	10098	36975	37301	0.39
Mean	3.7249	0.4969	0.1043	34.10	161.05	51.60	252.75	0.0060	6043.90	28701.95	29115.75	1.05
SE	0.4568	0.0669	0.0143	4.09	17.78	6.88	34.66	0.0010	1052.61	4652.42	4668.83	0.31

Data sheet of 6th month control (M6Cx) group (n=21).

Number	GSI	Ovary wet weight (g)	Sample wet weight (g)	Oocyte count							Total oocyte count	Percentage of large oocyte
				Large		Intermediate		Small				
				Sample	Total	Sample	Total	Dry weight (g)	Sample	Total		
1	6.1713	0.8915	0.1307	38	259	98	669	0.0072	7271	49594	50522	0.51
2	1.8164	0.5103	0.0833	0	0	80	490	0.0038	3837	23508	23998	0.00
3	5.2428	1.429	0.272	73	384	65	342	0.0062	6261	32893	33619	1.14
4	5.2577	0.7673	0.0763	20	201	63	634	0.0001	101	1016	1851	10.86
5	7.2067	1.1813	0.2101	56	315	95	534	0.0058	5857	32932	33781	0.93
6	5.6911	0.3381	0.0538	20	126	51	321	0.0007	707	4442	4889	2.58
7	4.9798	0.837	0.1533	73	399	79	431	0.0105	10603	57893	58723	0.68
8	4.6393	1.2444	0.2233	59	329	48	268	0.007	7069	39393	39990	0.82
9	4.1387	0.7202	0.1111	48	311	94	609	0.0027	2727	17675	18595	1.67
10	0.4633	0.0556	0.0086	0	0	18	116	0.0001	101	653	769	0.00
11	5.0282	0.5332	0.1433	37	138	54	201	0.0026	2626	9769	10108	1.37
12	4.5353	0.8334	0.1077	37	286	22	170	0.0029	2929	22662	23118	1.24
13	2.9550	0.4814	0.0835	59	340	21	121	0.0048	4847	27946	28407	1.20
14	4.2813	0.2867	0.0629	25	114	50	228	0.0009	909	4143	4485	2.54
15	2.0013	0.1744	0.0546	37	118	31	99	0.0046	4645	14838	15055	0.78
16	4.9832	0.4183	0.0584	20	143	29	208	0.0016	1616	11573	11924	1.20
17	5.7253	1.1914	0.1608	54	400	54	400	0.0119	12017	89037	89837	0.45
18	1.0303	0.1515	0.0383	49	194	8	32	0.0013	1313	5193	5419	3.58
19	0.2742	0.0264	0.007	0	0	0	0	0.0004	404	1523	1523	0.00
20	6.4419	0.5872	0.0981	31	186	33	198	0.0003	303	1813	2197	8.47
21	3.5867	0.3685	0.1197	43	132.4	14	43	0.0088	8887	27358	27533.4	0.48
Mean	4.1167	0.6203	0.1075	37.10	208.35	47.95	291.14	0.0040	4049.05	22659.71	23159.21	1.93
SE	0.4327	0.0887	0.0150	4.80	28.29	6.48	44.93	0.0008	781.49	4904.52	4941.45	0.60

Data sheet of 7th month control (M7Cx) group (n=21).

Number	GSI	Ovary wet weight (g)	Sample wet weight (g)	Oocyte count							Total oocyte count	Percentage of large oocyte
				Large		Intermediate		Small				
				Sample	Total	Sample	Total	Dry weight (g)	Sample	Total		
1	1.2672	0.1484	0.0288	15	77	92	474	0.0001	101	520	1071	7.19
2	6.3502	1.0436	0.218	65	311	5	24	0.0114	11512	55111	55446	0.56
3	7.3640	0.9603	0.2094	18	83	113	518	0.0528	53320	244522	245123	0.03
4	1.6179	0.1902	0.0446	19	81	14	60	0.005	5049	21533	21674	0.37
5	3.8678	0.8927	0.1814	57	281	62	305	0.0057	5756	28327	28913	0.97
6	5.3829	1.0107	0.2203	85	390	6	28	0.0111	11209	51426	51844	0.75
7	1.6747	0.3868	0.0718	9	49	132	711	0.0034	3433	18497	19257	0.25
8	3.4061	1.185	0.1785	88	584	24	159	0.0116	11714	77766	78509	0.74
9	1.9852	0.4974	0.0999	60	299	36	179	0.0017	1717	8548	9026	3.31
10	4.6117	2.2847	0.3007	77	585	28	213	0.0464	46857	356015	356813	0.16
11	4.6496	0.8103	0.1327	30	183	32	195	0.0043	4342	26515	26893	0.68
12	4.1320	1.202	0.1455	49	405	18	149	0.0083	8382	69243	69797	0.58
13	4.0928	0.8906	0.1347	45	298	31	205	0.0154	15552	102823	103326	0.29
14	5.3242	1.2537	0.1858	42	283	27	182	0.0247	24943	168306	168771	0.17
15	4.4616	0.8848	0.1578	44	247	60	336	0.0053	5352	30010	30593	0.81
16	4.4780	0.7756	0.1505	37	191	26	134	0.0054	5453	28103	28428	0.67
17	4.7728	0.8169	0.1232	33	219	36	239	0.0064	6463	42854	43312	0.51
18	3.0350	0.3317	0.1069	34	106	47	146	0.0056	5655	17547	17799	0.60
19	4.7220	0.4377	0.0945	18	83	29	134	0.01	10098	46773	46990	0.18
20	3.7759	0.9451	0.173	41	224	64	350	0.0199	20096	109784	110358	0.20
21	5.1232	0.6036	0.0978	24	148	14	86	0.0073	7372	45497	45731	0.32
Mean	4.0997	0.8358	0.1455	42.38	244.14	42.67	229.86	0.0125	12589.33	73796.19	74270.19	0.92
SE	0.3377	0.1014	0.0140	4.99	33.54	7.42	37.23	0.0030	3017.59	18906.24	18924.55	0.35

Data sheet of 4th month treated (M4Nx) group (n=20).

Number	GSI	Ovary wet weight (g)	Sample wet weight (g)	Oocyte count							Total oocyte count	Percentage of large oocyte
				Large		Intermediate		Small				
				Sample	Total	Sample	Total	Dry weight (g)	Sample	Total		
1	2.0473	0.2428	0.036	30	202	29	196	0.0003	303	2044	2442	8.27
2	6.0707	0.4768	0.0769	34	211	15	93	0.0061	6160	38194	38498	0.55
3	0.2936	0.0305	0.0089	0	0	11	38	0.0019	1919	6576	6614	0.00
4	1.1662	0.1205	0.0278	0	0	56	243	0.0006	606	2627	2870	0.00
5	4.1134	0.3963	0.0629	13	82	11	69	0.002	2020	12727	12878	0.64
6	0.2640	0.0189	0.0189	0	0	0	0	0.0025	2525	2525	2525	0.00
7	0.5977	0.0669	0.0214	0	0	41	128	0.0015	1515	4736	4864	0.00
8	1.5253	0.0502	0.0163	0	0	23	71	0.0023	2323	7154	7225	0.00
9	0.4677	0.0406	0.0122	0	0	18	60	0.0005	505	1681	1741	0.00
10	3.6212	0.294	0.0611	20	96	23	111	0.0012	1212	5832	6039	1.59
11	3.6160	0.3087	0.1096	15	42	46	130	0.0002	202	569	741	5.67
12	1.2225	0.1876	0.095	56	111	22	43	0.0001	101	199	353	31.44
13	0.5941	0.0333	0.0103	0	0	11	36	0.0003	303	980	1016	0.00
14	0.2820	0.0129	0.0129	0	0	0	0	0.0018	1818	1818	1818	0.00
15	0.6030	0.0745	0.0163	1	5	9	41	0.0001	101	462	508	0.98
16	1.0753	0.0548	0.0176	14	44	8	25	0.0006	606	1887	1956	2.25
17	2.2989	0.1651	0.0327	0	0	64	323	0.0001	101	510	833	0.00
18	0.4233	0.0399	0.0119	0	0	6	20	0.0001	101	339	359	0.00
19	2.7138	0.3688	0.1504	46	113	82	201	0.0031	3131	7678	7992	1.41
20	0.6180	0.0539	0.0214	0	0	20	50	0.0019	1919	4833	4883	0.00
Mean	1.6807	0.1519	0.0410	11.45	45.30	24.75	93.90	0.0014	1373.55	5168.55	5307.75	2.64
SE	0.3581	0.0325	0.0088	3.87	15.31	4.97	19.42	0.0003	330.70	1883.94	1893.07	1.59

Data sheet of 5th month treated (M5Nx) group (n=19).

Number	GSI	Ovary wet weight (g)	Sample wet weight (g)	Oocyte count							Total oocyte count	Percentage of large oocyte
				Large		Intermediate		Small				
				Sample	Total	Sample	Total	Dry weight (g)	Sample	Total		
1	1.2801	0.21	0.1	1	2	229	481	0.0035	3534	7421	7904	0.03
2	5.3295	0.404	0.118	33	113	39	134	0.004	4039	13828	14075	0.80
3	7.0964	0.7247	0.1298	32	179	54	306	0.0023	2323	12970	13455	1.33
4	1.1865	0.132	0.0299	1	4	69	305	0.0033	3332	14710	15019	0.03
5	3.1373	0.1773	0.0213	9	75	16	133	0.0033	3332	27735	27943	0.27
6	4.4103	0.3911	0.0699	62	347	36	201	0.0049	4948	27684	28232	1.23
7	2.8736	0.1398	0.0388	16	58	2	7	0.0064	6463	23287	23352	0.25
8	3.9438	0.3308	0.0379	9	79	28	244	0.0014	1414	12342	12665	0.62
9	0.6702	0.0575	0.0111	0	0	34	176	0.0001	101	523	699	0.00
10	2.1558	0.1663	0.0349	25	119	37	176	0.0014	1414	6737	7032	1.69
11	5.2699	0.4763	0.1152	37	153	55	227	0.0085	8584	35490	35870	0.43
12	3.0040	0.1735	0.0493	15	53	6	21	0.0085	8584	30208	30282	0.18
13	4.6581	0.2289	0.0529	11	48	45	195	0.0042	4241	18352	18595	0.26
14	2.5466	0.2796	0.0394	26	185	18	128	0.0032	3232	22932	23245	0.80
15	0.3784	0.0269	0.005	0	0	30	161	0.0029	2929	15756	15917	0.00
16	4.7733	0.5964	0.1003	37	220	68	404	0.0058	5857	34827	35451	0.62
17	3.8560	0.2955	0.0618	33	158	29	139	0.0023	2323	11106	11403	1.39
18	1.0973	0.0567	0.0086	0	0	31	204	0.0051	5150	33955	34159	0.00
19	0.6698	0.0223	0.0033	0	0	7	47	0.0002	202	1365	1412	0.00
Mean	3.0704	0.2573	0.0541	18.26	94.37	43.84	194.16	0.0038	3789.58	18485.58	18774.21	0.52
SE	0.4370	0.0443	0.0093	4.02	21.73	11.18	27.47	0.0005	552.65	2529.45	2537.72	0.13

Data sheet of 6th month treated (M6Nx) group (n=20).

Number	GSI	Ovary wet weight (g)	Sample wet weight (g)	Oocyte count							Total oocyte count	Percentage of large oocyte
				Large		Intermediate		Small				
				Sample	Total	Sample	Total	Dry weight (g)	Sample	Total		
1	3.0342	0.386	0.108	44	157	29	104	0.0105	10603	37897	38158	0.41
2	1.8271	0.2691	0.076	23	81	59	209	0.0013	1313	4648	4938	1.64
3	6.1600	0.7037	0.0974	71	513	41	296	0.0077	7776	56179	56988	0.90
4	2.6680	0.288	0.0847	8	27	72	245	0.0051	5150	17512	17784	0.15
5	3.8954	0.3198	0.0722	15	66	44	195	0.0023	2323	10288	10549	0.63
6	1.1959	0.0659	0.0224	15	44	9	27	0.0001	101	297	368	11.96
7	4.3834	0.8953	0.1267	50	353	30	212	0.0027	2727	19267	19832	1.78
8	2.2607	0.2348	0.0758	32	99	0	0	0.0072	7271	22522	22621	0.44
9	1.1599	0.1207	0.0221	0	0	37	202	0.0001	101	552	754	0.00
10	0.7412	0.0381	0.0114	7	23	38	127	0.0001	101	338	488	4.71
11	0.1899	0.0146	0.0041	0	0	1	4	0.0025	2525	8990	8994	0.00
12	1.7389	0.2149	0.0477	3	14	106	478	0.0014	1414	6369	6861	0.20
13	5.2494	0.5436	0.1801	54	163	0	0	0.0165	16662	50293	50456	0.32
14	2.4161	0.2998	0.0919	60	196	13	42	0.0025	2525	8236	8474	2.31
15	3.6573	0.5559	0.1296	33	142	4	17	0.0126	12724	54578	54737	0.26
16	4.1355	0.5304	0.1104	29	139	29	139	0.0039	3938	18921	19199	0.72
17	2.2466	0.1039	0.0221	10	47	2	9	0.0006	606	2849	2905	1.62
18	1.6802	0.245	0.0427	11	63	64	367	0.0031	3131	17962	18392	0.34
19	0.3798	0.0258	0.0102	0	0	0	0	0.0016	1616	4087	4087	0.00
20	3.6737	0.2677	0.0353	19	144	5	38	0.0001	101	766	948	15.19
Mean	2.6347	0.3062	0.0685	24.20	113.55	29.15	135.55	0.0041	4135.40	17127.55	17376.65	2.18
SE	0.3629	0.0531	0.0108	4.84	28.56	6.55	30.84	0.0010	1035.44	4117.26	4134.97	0.91

Data sheet of 7th month treated (M7Nx) group (n=21).

Number	GSI	Ovary wet weight (g)	Sample wet weight (g)	Oocyte count							Total oocyte count	Percentage of large oocyte
				Large		Intermediate		Small				
				Sample	Total	Sample	Total	Dry weight (g)	Sample	Total		
1	5.5709	0.3706	0.0698	18	96	49	260	0.0035	3534	18766	19122	0.50
2	4.5711	0.2515	0.0597	10	42	50	211	0.0012	1212	5105	5358	0.78
3	4.8387	0.2884	0.0784	22	81	18	66	0.0027	2727	10030	10177	0.80
4	2.8081	0.1808	0.0384	15	71	6	28	0.0017	1717	8083	8182	0.87
5	6.4846	0.3838	0.0589	14	91	22	143	0.0031	3131	20399	20633	0.44
6	1.4877	0.1158	0.0214	15	81	20	108	0.0017	1717	9290	9479	0.85
7	2.5812	0.1282	0.028	13	60	22	101	0.0029	2929	13409	13570	0.44
8	4.6814	0.3086	0.0976	24	76	31	98	0.0026	2626	8302	8476	0.90
9	5.4714	0.2253	0.0508	16	71	7	31	0.0052	5251	23289	23391	0.30
10	4.6565	0.187	0.0631	14	42	18	53	0.0001	101	299	394	10.66
11	2.6427	0.2789	0.0359	1	8	36	280	0.0011	1111	8630	8918	0.09
12	5.1937	0.2508	0.0481	19	99	16	83	0.0059	5958	31066	31248	0.32
13	5.4878	0.243	0.0455	15	80	22	118	0.0001	101	539	737	10.85
14	3.1659	0.1114	0.0308	8	29	12	43	0.0018	1818	6574	6646	0.44
15	4.9168	0.2408	0.0562	17	73	11	47	0.001	1010	4327	4447	1.64
16	4.0468	0.3673	0.1192	45	139	7	22	0.0082	8281	25516	25677	0.54
17	0.5547,	0.0454	0.0092	0	0	12	59	0.0001	101	498	557	0.00
18	1.5182	0.1995	0.0331	1	6	38	229	0.0029	2929	17651	17886	0.03
19	4.2293	0.5838	0.0813	33	237	2	14	0.0038	3837	27556	27807	0.85
20	5.3302	0.4868	0.0777	15	94	44	276	0.0029	2929	18348	18718	0.50
21	2.8652	0.2104	0.0266	19	150	6	48	0.0001	101	799	997	15.05
Mean	3.9573	0.2599	0.0538	15.90	77.43	21.38	110.38	0.0025	2529.57	12308.38	12496.19	2.23
SE	0.3471	0.0278	0.0059	2.23	11.65	3.19	19.24	0.0005	455.97	2080.32	2086.84	0.93

Oneway ANOVA of oocyte diameter (n=80-81).

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
measurement size (mm)	Between Groups	98.130	2	49.065	904.369	.000
	Within Groups	12.966	239	5.425E-02		
	Total	111.096	241			

Post Hoc Tests

Homogeneous Subsets

oocyte diameter (mm)

Duncan^{a,b}

egg-size	N	Subset for alpha = .05		
		1	2	3
small	81	.21512		
intermediate	81		.77130	
large	80			1.75750
Sig.		1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 80.664

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

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T-Test of body weight compared between M4Cx and M4Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
BODY M4Cx	19	24.8968	5.1013	1.1703
M4Nx	20	16.8730	4.5470	1.0167

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
									Lower	Upper
BODY	Equal variances assumed	.112	.740	5.191	37	.000	8.0238	1.5456	4.8921	11.1556
	Equal variances not assumed			5.176	35.998	.000	8.0238	1.5503	4.8797	11.1680

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T-Test of body weight compared between M5Cx and M5Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
BODY M5Cx	20	32.4100	8.7166	1.9491
M5Nx	19	23.2663	6.7070	1.5387

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
									Lower	Upper
BODY	Equal variances assumed	.703	.407	3.657	37	.001	9.1437	2.5000	4.0781	14.2093
	Equal variances not assumed			3.682	35.505	.001	9.1437	2.4832	4.1050	14.1824

T-Test of body weight compared between M6Cx and M6Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
BODY M6Cx	21	34.2667	15.2278	3.3230
M6Nx	20	28.0055	9.1293	2.0414

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
									Lower	Upper
BODY	Equal variances assumed	5.202	.028	1.587	39	.121	6.2612	3.9462	-1.7207	14.2430
	Equal variances not assumed			1.605	32.997	.118	6.2612	3.8999	-1.6733	14.1956

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T-Test of body weight compared between M7Cx and M7Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
BODY M7Cx	21	39.9514	10.0488	2.1928
M7Nx	21	18.8343	6.6024	1.4408

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
								Lower	Upper	
BODY	Equal variances assumed	2.228	.143	8.048	40	.000	21.1171	2.6237	15.8143	26.4199
	Equal variances not assumed			8.048	34.556	.000	21.1171	2.6237	15.7882	26.4461

จุฬาลงกรณ์มหาวิทยาลัย

T-Test of ovary weight compared between M4Cx and M4Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
OVARY M4Cx	19	.6011	.3880	8.900E-02
M4Nx	20	.2860	.2710	6.061E-02

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
								Lower	Upper	
OVARY	Equal variances assumed	3.514	.069	2.952	37	.005	.3151	.1067	9.884E-02	.5312
	Equal variances not assumed			2.926	32.038	.006	.3151	.1077	9.573E-02	.5344

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T-Test of ovary weight compared between M5Cx and M5Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
OVARY M5Cx	20	1.2145	.7983	.1785
M5Nx	19	.7468	.5593	.1283

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
									Lower	Upper
OVARY.	Equal variances assumed	2.903	.097	2.108	37	.042	.4677	.2218	1.821E-02	.9171
	Equal variances not assumed			2.127	34.098	.041	.4677	.2198	2.095E-02	.9144

T-Test of ovary weight compared between M6Cx and M6Nx

Group Statistics

	sample	N	Mean	Std. Deviation	Std. Error Mean
OVARY	M6Cx	21	1.4281	.9369	.2044
	M6Nx	20	.7925	.5664	.1266

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
									Lower	Upper
OVARY	Equal variances assumed	6.865	.012	2.612	39	.013	.6356	.2433	.1435	1.1277
	Equal variances not assumed			2.643	33.156	.012	.6356	.2405	.1464	1.1248

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T-Test of ovary weight compared between M7Cx and M7Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
OVARY M7Cx	21	1.6633	.7541	.1648
M7Nx	21	.7086	.3342	7.293E-02

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
								Lower	Upper	
OVARY	Equal variances assumed	8.835	.005	5.304	40	.000	.9548	.1800	.5910	1.3186
	Equal variances not assumed			5.304	27.563	.000	.9548	.1800	.5858	1.3237

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T-Test of GSI compared between M4Cx and M4Nx

Group Statistics

sample	N.	Mean	Std. Deviation	Std. Error Mean
GSI M4Cx	19	2.480974	1.605604	.368351
M4Nx	20	1.680700	1.601553	.358118

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
									Lower	Upper
GSI	Equal variances assumed	.045	.834	1.558	37	.128	.800274	.513708	-.240597	1.841145
	Equal variances not assumed			1.558	36.888	.128	.800274	.513742	-.240774	1.841321

จุฬาลงกรณ์มหาวิทยาลัย

T-Test of GSI compared between M5Cx and M5Nx

Group Statistics

	sample	N	Mean	Std. Deviation	Std. Error Mean
GSI	M5Cx	20	3.724940	2.043003	.456829
	M5Nx	19	3.070363	1.905001	.437037

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
								Lower	Upper	
GSI	Equal variances assumed	.218	.643	1.033	37	.308	.654577	.633378	-.628768	1.937922
	Equal variances not assumed			1.035	36.989	.307	.654577	.632214	-.626423	1.935577

T-Test of GSI compared between M6Cx and M6Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
GSI M6Cx	21	4.116657	1.983048	.432737
M6Nx	20	2.634660	1.622964	.382906

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
									Lower	Upper
GSI	Equal variances assumed	.735	.396	2.611	39	.013	1.481997	.567567	.333984	2.630010
	Equal variances not assumed			2.624	38.157	.012	1.481997	.564767	.338841	2.625153

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T-Test of GSI compared between M7Cx and M7Nx

Group Statistics

	sample	N	Mean	Std. Deviation	Std. Error Mean
GSI	M7Cx	21	4.099752	1.547601	.337714
	M7Nx	21	3.957281	1.590537	.347084

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
									Lower	Upper
GSI	Equal variances assumed	.402	.530	.294	40	.770	.142471	.484271	-.836276	1.121219
	Equal variances not assumed			.294	39.970	.770	.142471	.484271	-.836299	1.121242

T-Test of total oocyte count compared between M4Cx and M4Nx

Group Statistics

	sample	N	Mean	Std. Deviation	Std. Error Mean
TOTAL	M4Cx	19	22699.63	33001.16	7570.99
	M4Nx	20	5307.75	8466.06	1893.07

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
								Lower		Upper
TOTAL	Equal variances assumed	4.713	.036	2.281	37	.028	17391.88	7625.86	1940.41	32843.35
	Equal variances not assumed			2.229	20.246	.037	17391.88	7804.07	1125.55	33658.21

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T-Test of total oocyte count compared between M5Cx and M5Nx

Group Statistics

	sample	N	Mean	Std. Deviation	Std. Error Mean
TOTAL	M5Cx	20	29115.75	20879.65	4668.83
	M5Nx	19	18774.21	11061.68	2537.72

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
									Lower	Upper
TOTAL	Equal variances assumed	7.922	.008	1.918	37	.063	10341.54	5393.11	-585.93	21269.01
	Equal variances not assumed			1.946	29.195	.061	10341.54	5313.95	-523.54	21206.62

T-Test of total oocyte count compared between M6Cx and M6Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
TOTAL M6Cx	21	23159.19	22644.57	4941.45
M6Nx	20	17376.65	18492.15	4134.97

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
								Lower		Upper
TOTAL	Equal variances assumed	.458	.502	.893	39	.377	5782.54	6475.57	-7315.54	18880.62
	Equal variances not assumed			.897	38.134	.375	5782.54	6443.28	-7259.70	18824.79

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T-Test of total oocyte count compared between M7Cx and M7Nx

Group Statistics

	sample	N	Mean	Std. Deviation	Std. Error Mean
TOTAL	M7Cx	21	74270.19	86723.20	18924.55
	M7Nx	21	12496.19	9563.08	2086.84

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
									Lower	Upper
TOTAL	Equal variances assumed	13.759	.001	3.245	40	.002	61774.00	19039.27	23294.21	100253.79
	Equal variances not assumed			3.245	20.486	.004	61774.00	19039.27	22119.14	101428.86

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T-Test of large oocyte count compared between M4Cx and M4Nx

Group Statistics

	sample	N	Mean	Std. Deviation	Std. Error Mean
LARGE	M4Cx	19	106.89	72.96	16.74
	M4Nx	20	45.30	68.46	15.31

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
								Lower	Upper	
LARGE	Equal variances assumed	.008	.928	2.720	37	.010	61.59	22.64	15.71	107.48
	Equal variances not assumed			2.716	36.507	.010	61.59	22.68	15.61	107.57

T-Test of large oocyte count compared between M5Cx and M5Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
LARGE M5Cx	20	161.05	79.50	17.78
M5Nx	19	94.37	94.73	21.73

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
									Lower	Upper
LARGE	Equal variances assumed	.950	.336	2.386	37	.022	66.68	27.95	10.05	123.31
	Equal variances not assumed			2.375	35.211	.023	66.68	28.08	9.69	123.67

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T-Test of large oocyte count compared between M6Cx and M6Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
LARGE M6Cx	21	208.35	129.64	28.29
M6Nx	20	113.55	127.74	28.56

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
									Lower	Upper
LARGE	Equal variances assumed	.647	.426	2.357	39	.024	94.80	40.22	13.45	176.15
	Equal variances not assumed			2.358	38.952	.023	94.80	40.20	13.48	176.12

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T-Test of large oocyte count compared between M7Cx and M7Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
LARGE M7Cx	21	244.14	153.72	33.54
M7Nx	21	77.43	53.39	11.65

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
								Lower	Upper	
LARGE	Equal variances assumed	13.704	.001	4.695	40	.000	166.71	35.51	94.95	238.48
	Equal variances not assumed			4.695	24.756	.000	166.71	35.51	93.54	239.88

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T-Test of medium oocyte count compared between M4Cx and M4Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
MEDIUM M4Cx	19	163.42	130.05	29.84
M4Nx	20	93.90	86.85	19.42

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
								Lower	Upper	
MEDIUM	Equal variances assumed	3.567	.067	1.973	37	.056	69.52	35.24	-1.89	140.93
	Equal variances not assumed			1.953	31.180	.060	69.52	35.60	-3.07	142.11

T-Test of medium oocyte count compared between M5Cx and M5Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
MEDIUM M5Cx	20	252.75	155.00	34.68
M5Nx	19	194.16	119.73	27.47

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
									Lower	Upper
MEDIUM	Equal variances assumed	1.175	.285	1.316	37	.196	58.59	44.52	-31.61	148.79
	Equal variances not assumed			1.325	35.556	.194	58.59	44.22	-31.14	148.32

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T-Test of medium oocyte count compared between M6Cx and M6Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
MEDIUM M6Cx	21	291.14	205.88	44.93
M6Nx	20	135.55	137.91	30.84

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
								Lower	Upper	
MEDIUM	Equal variances assumed	4.326	.044	2.828	39	.007	155.59	55.01	44.32	266.87
	Equal variances not assumed			2.855	35.087	.007	155.59	54.49	44.98	266.21

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T-Test of medium oocyte count compared between M7Cx and M7Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
MEDIUM M7Cx	21	229.86	170.62	37.23
MEDIUM M7Nx	21	110.38	88.16	19.24

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
								Lower		Upper
MEDIUM	Equal variances assumed	4.293	.045	2.851	40	.007	119.48	41.91	34.78	204.18
	Equal variances not assumed			2.851	29.969	.008	119.48	41.91	33.89	205.07

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T-Test of small oocyte count compared between M4Cx and M4Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
SMALL M4Cx	19	22429.32	33055.02	7583.34
M4Nx	20	5168.55	8425.26	1883.94

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
								Lower	Upper	
SMALL	Equal variances assumed	4.740	.036	2.261	37	.030	17260.77	7635.12	1790.54	32730.99
	Equal variances not assumed			2.209	20.217	.039	17260.77	7813.85	972.58	33548.95

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T-Test of small oocyte count compared between M5Cx and M5Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
SMALL M5Cx	20	28701.95	20806.26	4652.42
M5Nx	19	18485.68	11025.63	2529.45

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
									Lower	Upper
SMALL	Equal variances assumed	7.931	.008	1.901	37	.065	10216.27	5374.44	-673.38	21105.91
	Equal variances not assumed			1.929	29.200	.063	10216.27	5295.58	-611.19	21043.72

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T-Test of small oocyte count compared between M6Cx and M6Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
SMALL M6Cx	21	22659.71	22475.33	4904.52
M6Nx	20	17127.55	18412.94	4117.28

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
								Lower	Upper	
SMALL	Equal variances assumed	.447	.508	.860	39	.395	5532.16	6435.20	-7484.25	18548.58
	Equal variances not assumed			.864	38.168	.393	5532.16	6403.60	-7429.37	18493.70

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จุฬาลงกรณ์มหาวิทยาลัย

T-Test of small oocyte count compared between M7Cx and M7Nx

Group Statistics

sample	N	Mean	Std. Deviation	Std. Error Mean
SMALL M7Cx	21	73796.19	86639.28	18906.24
M7Nx	21	12308.38	9533.23	2080.32

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Mean	
									Lower	Upper
SMALL	Equal variances assumed	13.750	.001	3.233	40	.002	61487.81	19020.35	23046.25	99929.37
	Equal variances not assumed			3.233	20.484	.004	61487.81	19020.35	21872.10	101103.52

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Biography

Miss Jirarach Srijungam was born on the 12nd of December 1973 in Bangkok, Thailand. She graduated her bachelor's degree of science in biology from the Faculty of Science, Chulalongkorn University in 1995. She continued her graduated study for a master's degree of science in zoology at the same institute in 1996. She was awarded a scholarship by the University Development Committee (UDC), Ministry of University Affairs in 1997. After her graduation, she works as a full-time lecturer at the Department of Biology, Faculty of Science, Chulalongkorn University.



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