New Added Appendix II. Drug Combination in Vivo

Example II-A. Analysis for Combination Data in the Table for Rotenone and Pyrethrins against house flies

(Adopted from Table 19 and Appendix V of Pharmacol Rev 58:621-681, 2006)

Computer Generated Report for Rotenone and Pyrethrins against Houseflies at 1:5 and 1:15 Combination Ratios
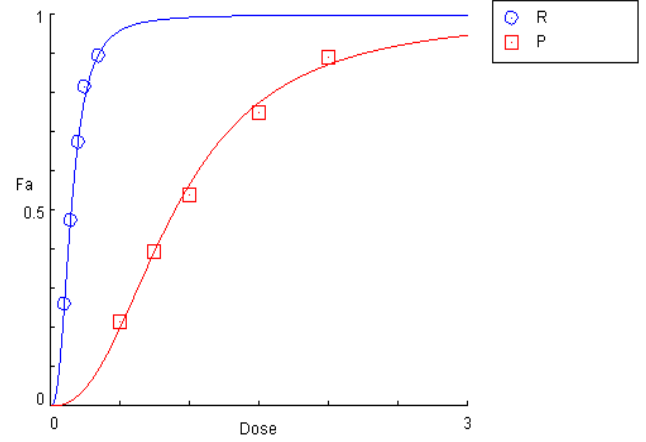
CompuSyn Report

Experiment Name:	APPENDIX V. Rotenone+Pyrethrins combinations against houseflies. 1:5 and 1:15. (For crude data see Table 19)
Date:	4/20/2006
File Name:	A:\Rotenone-Pyrethrins SDA.cse
Description	Toxicity of Rotenone and Pyrethrins to Houseflies. Original data from Le Pelley and Sullivan (1936) J Econom Entomol 29: 791-797, Retrieved and analyzed by Finney (1947,1952) and analyzed by Chou and Talalay (1987). Further analyzed by Chou and Martin (2005) for this report.
Drug:	Rotenone (R) [µg / ml]
Drug:	Pyrethrins (P) [µg / ml]
Drug Combo:	Rotenone+Pyrethrins (1R:5P) (R+P [1:5])
Drug Combo:	Rotenone+Pyrethrins (1R:15P) (R+P [1:15])

Data for Drug: R [µg / ml]

Dose	Effect
0.1	0.26
0.15	0.475
0.2	0.675
0.25	0.815
0.35	0.895

5 data points entered

X-int: -0.8224
Y-int: 2.15916 +/- 0.08608
m: 2.62547 +/- 0.11633
Dm: 0.15053
r: 0.99707

Data for Drug: P [µg / ml]

Dose	Effect
0.5	0.215
0.75	0.395
1.0	0.54
1.5	0.75
2.0	0.89

5 data points entered

X-int: -0.0490
Y-int: 0.11702 +/- 0.02909
m: 2.38663 +/- 0.13626
Dm: 0.89324
r: 0.99515

Data for Drug Combo: 1R:5P (R+P [1:5])

Dose A	Effect
0.05000+	0.27
0.075+	0.53
0.10000+	0.64
0.14583+	0.82
0.19583+	0.93

5 data points entered.

X-int: -0.3470
Y-int: 0.87433 +/- 0.04870
m: 2.51943 +/- 0.16213
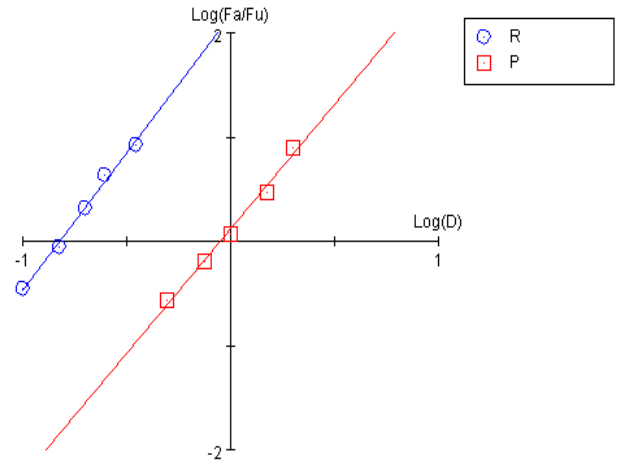**Dm:** 0.44974
r: 0.99385

Dose-Effect Curve for Drugs

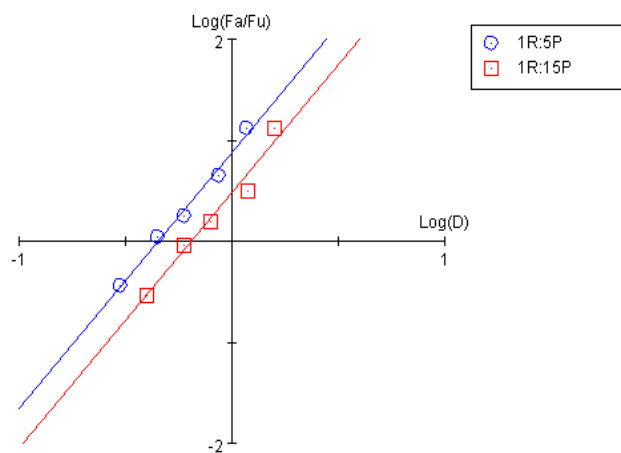

Dose-Effect Curve for Drug Combos
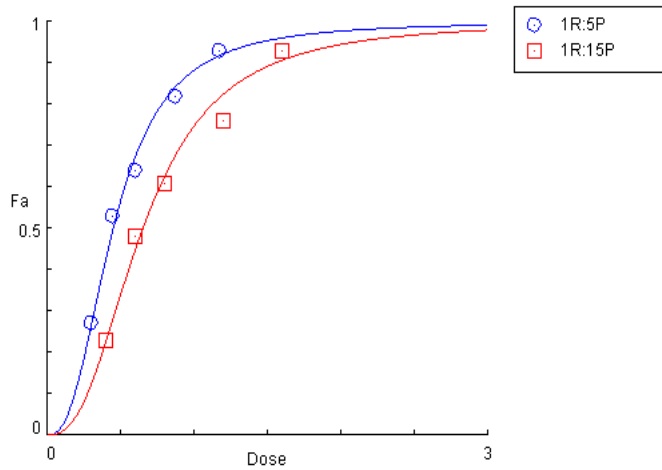
Median-Effect Plot for Drugs

Median-Effect Plot for Drug Combos

CI Data for Drug Combo: 1R:5P (R+P [1:5])

Fa	CI Value	S.D.A. Analysis
0.05	0.92278	0.92073 +/- 0.06155
0.1	0.92117	0.91945 +/- 0.04666
0.15	0.92027	0.91880 +/- 0.03770
0.2	0.91965	0.91838 +/- 0.03120
0.25	0.91916	0.91808 +/- 0.02612
0.3	0.91875	0.91785 +/- 0.02206
0.35	0.91840	0.91768 +/- 0.01887
0.4	0.91809	0.91753 +/- 0.01658
0.45	0.91781	0.91742 +/- 0.01531
0.5	0.91755	0.91733 +/- 0.01517
0.55	0.91729	0.91726 +/- 0.01617
0.6	0.91705	0.91720 +/- 0.01818
0.65	0.91681	0.91717 +/- 0.02102
0.7	0.91658	0.91716 +/- 0.02463
0.75	0.91634	0.91718 +/- 0.02902
0.8	0.91608	0.91724 +/- 0.03440
0.85	0.91582	0.91737 +/- 0.04122
0.9	0.91552	0.91764 +/- 0.05061
0.95	0.91520	0.91829 +/- 0.06630
0.97	0.91508	0.91893 +/- 0.07774

CI values for actual experimental points:

Total Dose	Fa	CI Value
0.3	0.27	0.90974
0.45	0.53	0.87517
0.6	0.64	0.97344
0.875	0.82	0.97621
1.175	0.93	0.85657

CI Data for Drug Combo: 1R:15P (R+P [1:15]) CI values for actual experimental points:

Fa	CI Value	S.D.A. Analysis
0.05	0.99383	0.99024 +/- 0.10349
0.1	0.98342	0.98041 +/- 0.07522
0.15	0.97710	0.97458 +/- 0.05799
0.2	0.97241	0.97031 +/- 0.04536
0.25	0.96858	0.96686 +/- 0.03544
0.3	0.96527	0.96391 +/- 0.02761
0.35	0.96228	0.96128 +/- 0.02195
0.4	0.95951	0.95886 +/- 0.01913
0.45	0.95687	0.95657 +/- 0.01973
0.5	0.95430	0.95437 +/- 0.02326
0.55	0.95176	0.95219 +/- 0.02867
0.6	0.94917	0.95002 +/- 0.03526
0.65	0.94650	0.94778 +/- 0.04277
0.7	0.94367	0.94544 +/- 0.05123
0.75	0.94057	0.94291 +/- 0.06086
0.8	0.93706	0.94008 +/- 0.07217
0.85	0.93287	0.93675 +/- 0.08615
0.9	0.92737	0.93248 +/- 0.10511
0.95	0.91870	0.92598 +/- 0.13654
0.97	0.91267	0.92164 +/- 0.15948

Total Dose	Fa	CI Value
0.4	0.23	0.95968
0.6	0.48	0.90804
0.8	0.61	0.97627
1.2	0.76	1.09822
1.6	0.93	0.81613

Combination Index Plot
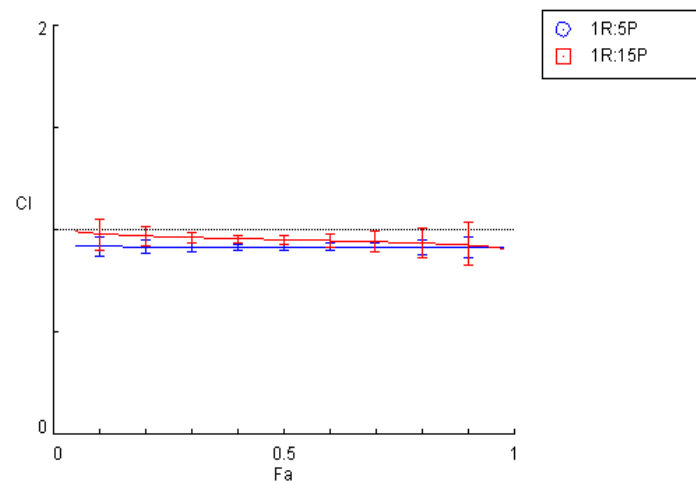
Logarithmic Combination Index Plot

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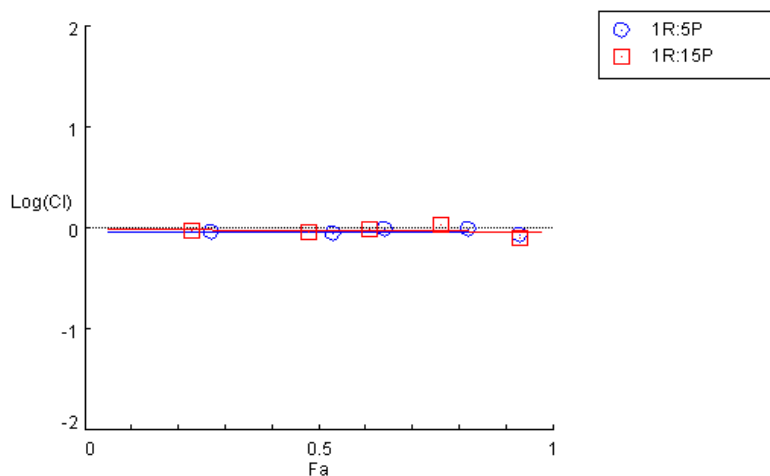
DRI Data for Drug Combo: 1R:5P (R+P [1:5])

Fa	Dose R	Dose P	DRI R	DRI P
0.05	0.04904	0.26012	2.10522	2.23329
0.1	0.06519	0.35575	2.08016	2.27045
0.15	0.07775	0.43184	2.06479	2.29377
0.2	0.08878	0.49970	2.05329	2.31148
0.25	0.09906	0.56371	2.04384	2.32622
0.3	0.10901	0.62631	2.03563	2.33916
0.35	0.11891	0.68917	2.02819	2.35099
0.4	0.12899	0.75368	2.02126	2.36210
0.45	0.13945	0.82121	2.01463	2.37281
0.5	0.15053	0.89324	2.00816	2.38335
0.55	0.16248	0.97160	2.00171	2.39393
0.6	0.17566	1.05865	1.99515	2.40479
0.65	0.19055	1.15775	1.98833	2.41616
0.7	0.20786	1.27395	1.98107	2.42837
0.75	0.22874	1.41542	1.97311	2.44188
0.8	0.25523	1.59674	1.96403	2.45745
0.85	0.29144	1.84763	1.95309	2.47643
0.9	0.34759	2.24284	1.93866	2.50186
0.95	0.46203	3.06739	1.91558	2.54349
0.97	0.56574	3.83279	1.89932	2.57353

DRI values calculated at experimental points

Fa	Dose R	Dose P	DRI R	DRI P
0.27	0.10306	0.58881	2.06117	2.35526
0.53	0.15757	0.93936	2.10099	2.50496
0.64	0.18741	1.13676	1.87407	2.27352
0.82	0.26819	1.68616	1.83900	2.31245
0.93	0.40317	2.64040	2.05875	2.69658

DRI Data for Drug Combo: 1R:15P (R+P [1:15])

Fa	Dose R	Dose P	DRI R	DRI P
0.05	0.04904	0.26012	3.85173	1.36201
0.1	0.06519	0.35575	3.81177	1.38682
0.15	0.07775	0.43184	3.78724	1.40241
0.2	0.08878	0.49970	3.76888	1.41426
0.25	0.09906	0.56371	3.75378	1.42413
0.3	0.10901	0.62631	3.74063	1.43280
0.35	0.11891	0.68917	3.72874	1.44073
0.4	0.12899	0.75368	3.71764	1.44818
0.45	0.13945	0.82121	3.70703	1.45536
0.5	0.15053	0.89324	3.69666	1.46244
0.55	0.16248	0.97160	3.68633	1.46955
0.6	0.17566	1.05865	3.67580	1.47683
0.65	0.19055	1.15775	3.66487	1.48448
0.7	0.20786	1.27395	3.65321	1.49268
0.75	0.22874	1.41542	3.64042	1.50178
0.8	0.25523	1.59674	3.62583	1.51225
0.85	0.29144	1.84763	3.60825	1.52503
0.9	0.34759	2.24284	3.58503	1.54217
0.95	0.46203	3.06739	3.54784	1.57027
0.97	0.56574	3.83279	3.52162	1.59057

DRI values calculated at experimental points

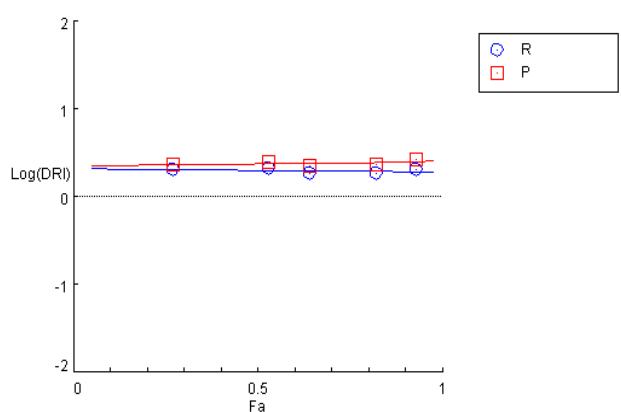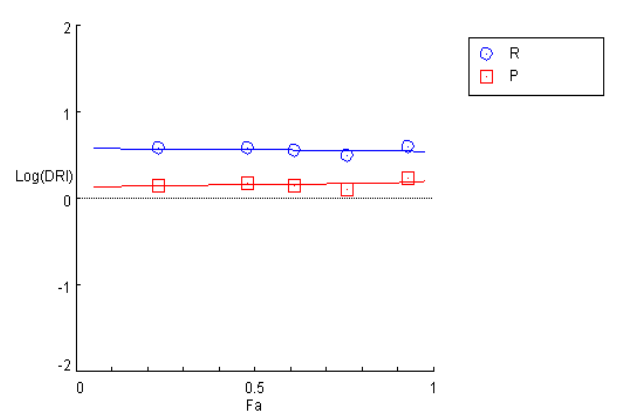| Fa	Dose R	Dose P	DRI R	DRI P
0.23	0.09500	0.53839	3.80012	1.43570
0.48	0.14601	0.86378	3.89350	1.53561
0.61	0.17849	1.07738	3.56972	1.43650
0.76	0.23350	1.44785	3.11330	1.28698
0.93	0.40317	2.64040	4.03172	1.76026

DRI Plot for Combo: 1R:5P (R+P [1:5])
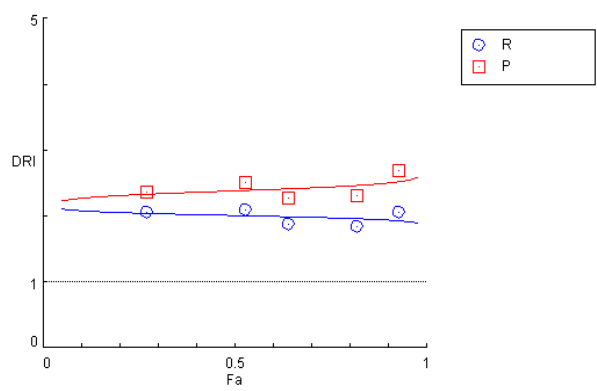
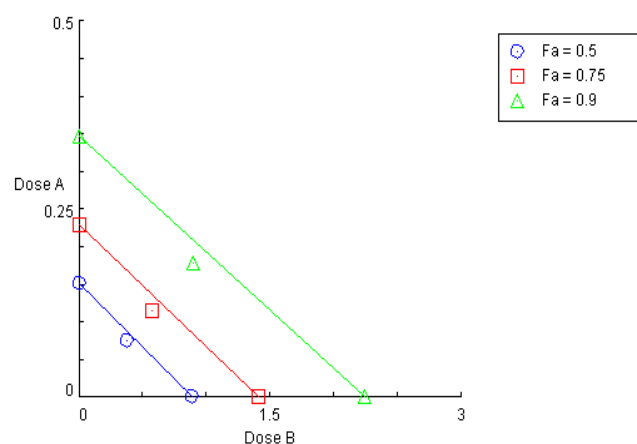DRI Plot for Combo: 1R:15P (R+P [1:15])
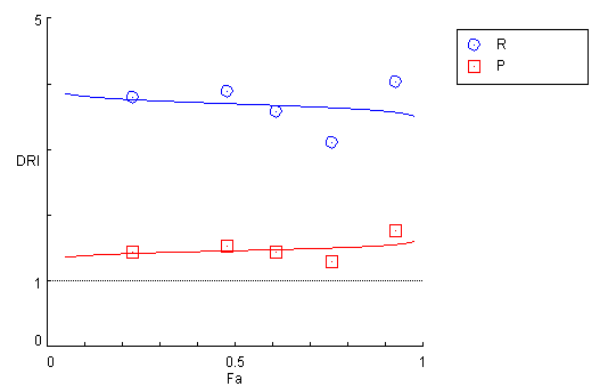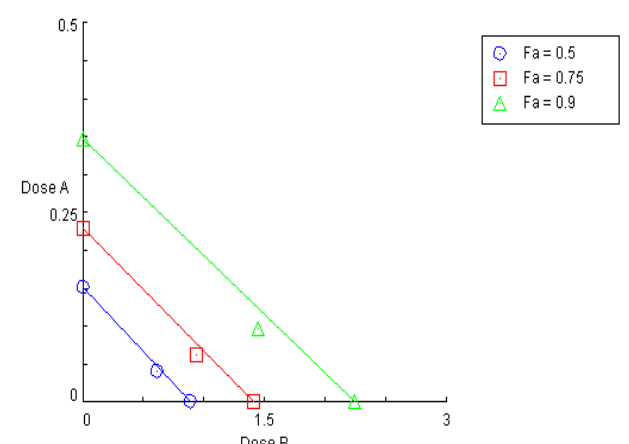
Log(DRI) Plot for Combo: 1R:5P (R+P [1:5])

Log(DRI) Plot for Combo: 1R:15P (R+P [1:15])

Isobologram for Combo: 1R:5P (R+P [1:5])

Isobologram for Combo: 1R:15P (R+P [1:15])

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Summary Table

Experiment Name:	APPENDIX V. Rotenone+Pyrethrins combinations against houseflies. 1:5 and 1:15. (For crude data see Table 19)
Date:	4/20/2006
File Name:	A:\Rotenone-Pyrethrins SDA.cse
Description	Toxicity of Rotenone and Pyrethrins to Houseflies. Original data from Le Pelley and Sullivan (1936) J Econom Entomol 29: 791-797, Retrieved and analyzed by Finney (1947,1952) and analyzed by Chou and Talalay (1987). Further analyzed by Chou and Martin (2005) for this report.
Drug:	Rotenone (R) [µg / ml]
Drug:	Pyrethrins (P) [µg / ml]
Drug Combo:	Rotenone+Pyrethrins (1R:5P) (R+P [1:5])
Drug Combo:	Rotenone+Pyrethrins (1R:15P) (R+P [1:15])

Drug/Combo	Dm	m	r
R	0.15053	2.62547	0.99707
P	0.89324	2.38663	0.99515
1R:5P	0.44974	2.51943	0.99385
1R:15P	0.65151	2.53267	0.98269

CI values at:

Combo	ED50	ED75	ED90	ED95
1R:5P	0.91755	0.91634	0.91552	0.91520
1R:15P	0.95430	0.94057	0.92737	0.91870

Data for Fa = 0.5

Drug/Combo	CI value	Dose R	Dose P
R		0.15053	
P			0.89324
1R:5P	0.91755	0.07496	0.37479
1R:15P	0.95430	0.04072	0.61079

Data for Fa = 0.75

Drug/Combo	CI value	Dose R	Dose P
R		0.22874	
P			1.41542
1R:5P	0.91634	0.11593	0.57964
1R:15P	0.94057	0.06283	0.94249

Data for Fa = 0.9

Drug/Combo	CI value	Dose R	Dose P
R		0.34759	
P			2.24284
1R:5P	0.91552	0.17929	0.89647
1R:15P	0.92737	0.09696	1.45434

Data for Fa = 0.95

Drug/Combo	CI value	Dose R	Dose P
R		0.46203	
P			3.06739
1R:5P	0.91520	0.24120	1.20598
1R:15P	0.91870	0.13023	1.95342

Data for Fa = 0.97

Drug/Combo	CI value	Dose R	Dose P
R		0.56574	
P			3.83279
1R:5P	0.91508	0.29786	1.48931
1R:15P	0.91267	0.16065	2.40970

In II-A, Examples for Other Options

F_a-CI plot with actual data point and Computer Simulation (without SDA bars):
(Selected from Report Option, Generate Report, Check-off the graphs you don't need)

Combination Index Plot
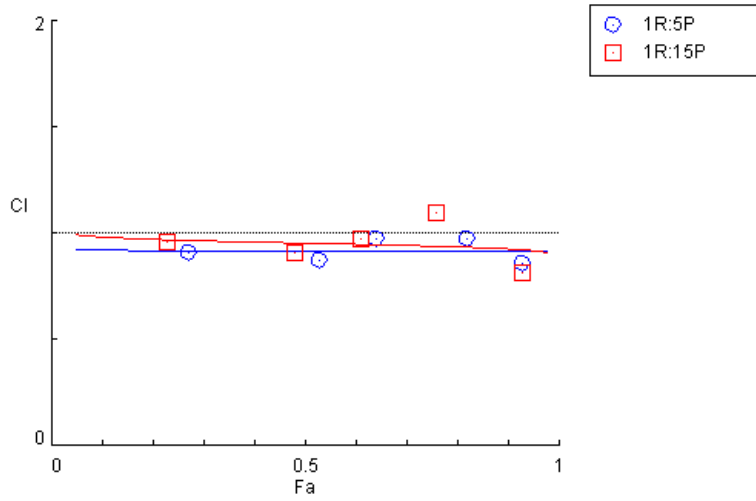
Isobolograms for 1:5 combination at other F_a's (e.g., at f_a = 0.5, 0.80 and 0.95)
(Selected from Report Option, Generate Report, Check-off the graphs you don't need)

Isobologram for Combo: 1R:5P (R+P [1:5])