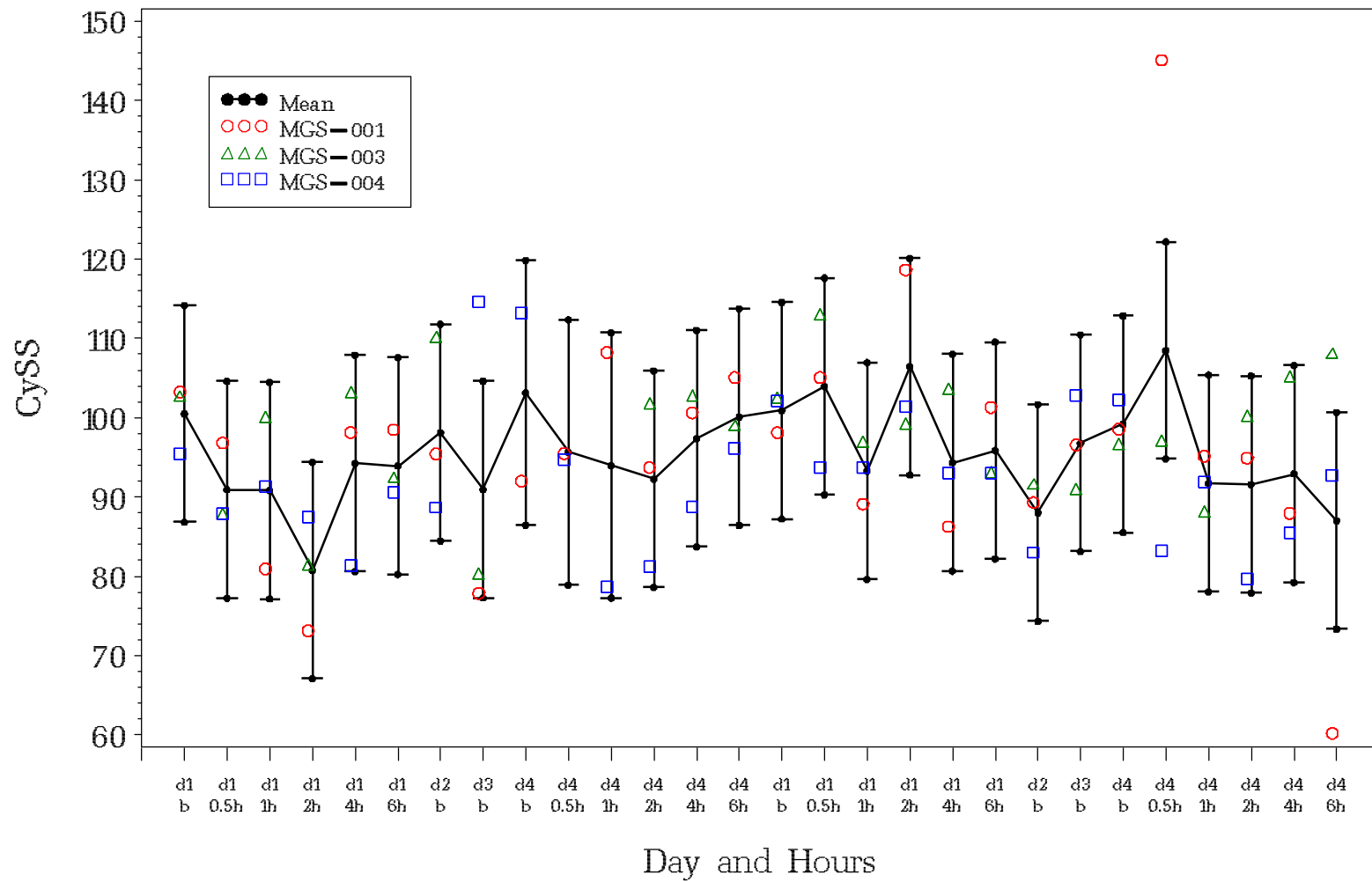# CySS (mV) (p= 0.74)

First d1—d4, Data from Placebo; Second d1—d4, Data from Muscadine.

Cys (mV) (p = 0.001)

First d1—d4, Data from Placebo; Second d1—d4, Data from Muscadine.

GSH (mV) (p = 0.54)

First d1—d4, Data from Placebo; Second d1—d4, Data from Muscadine.

GSSG (mV) (p = 0.60)

First d1—d4, Data from Placebo; Second d1—d4, Data from Muscadine.
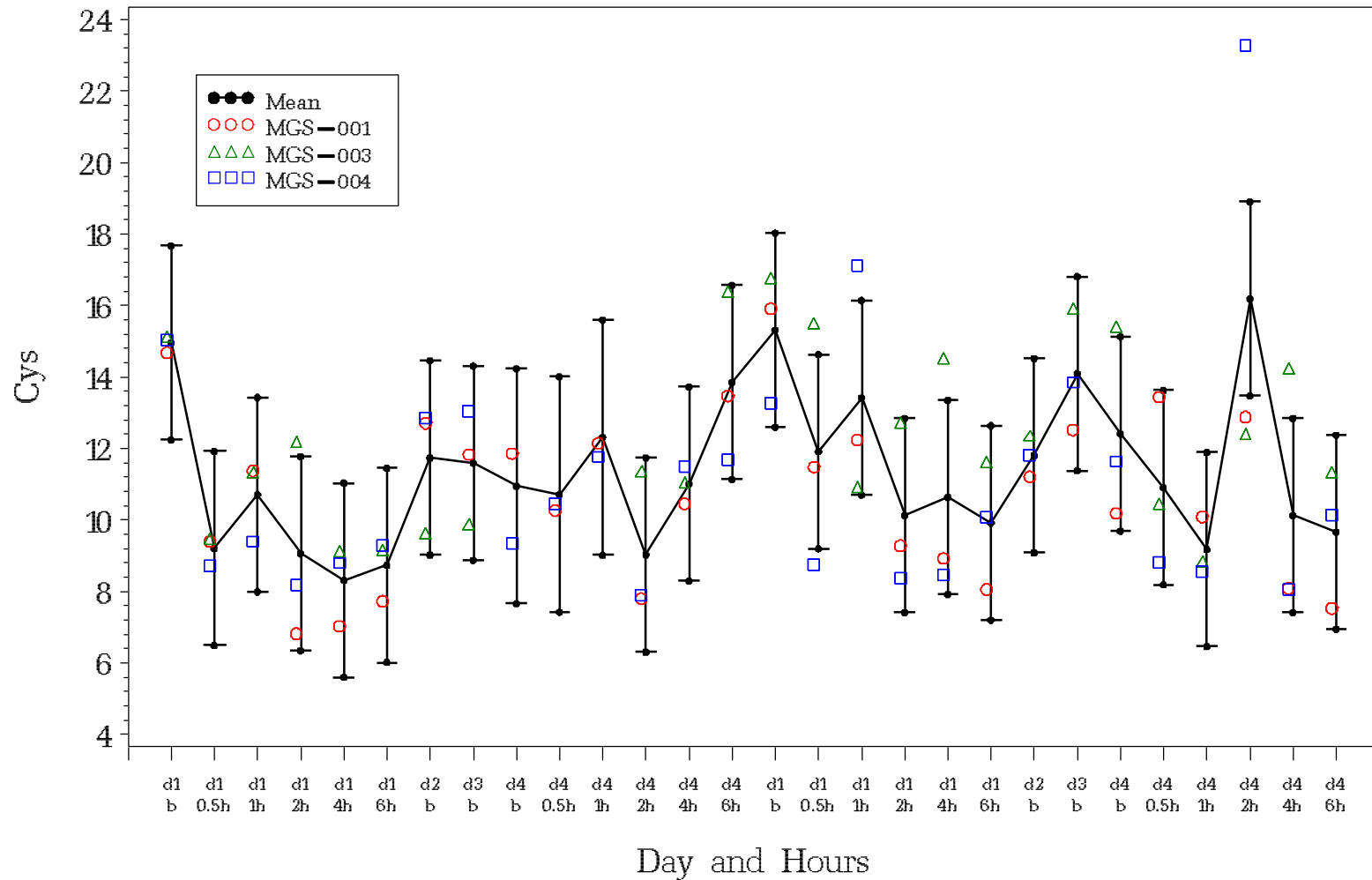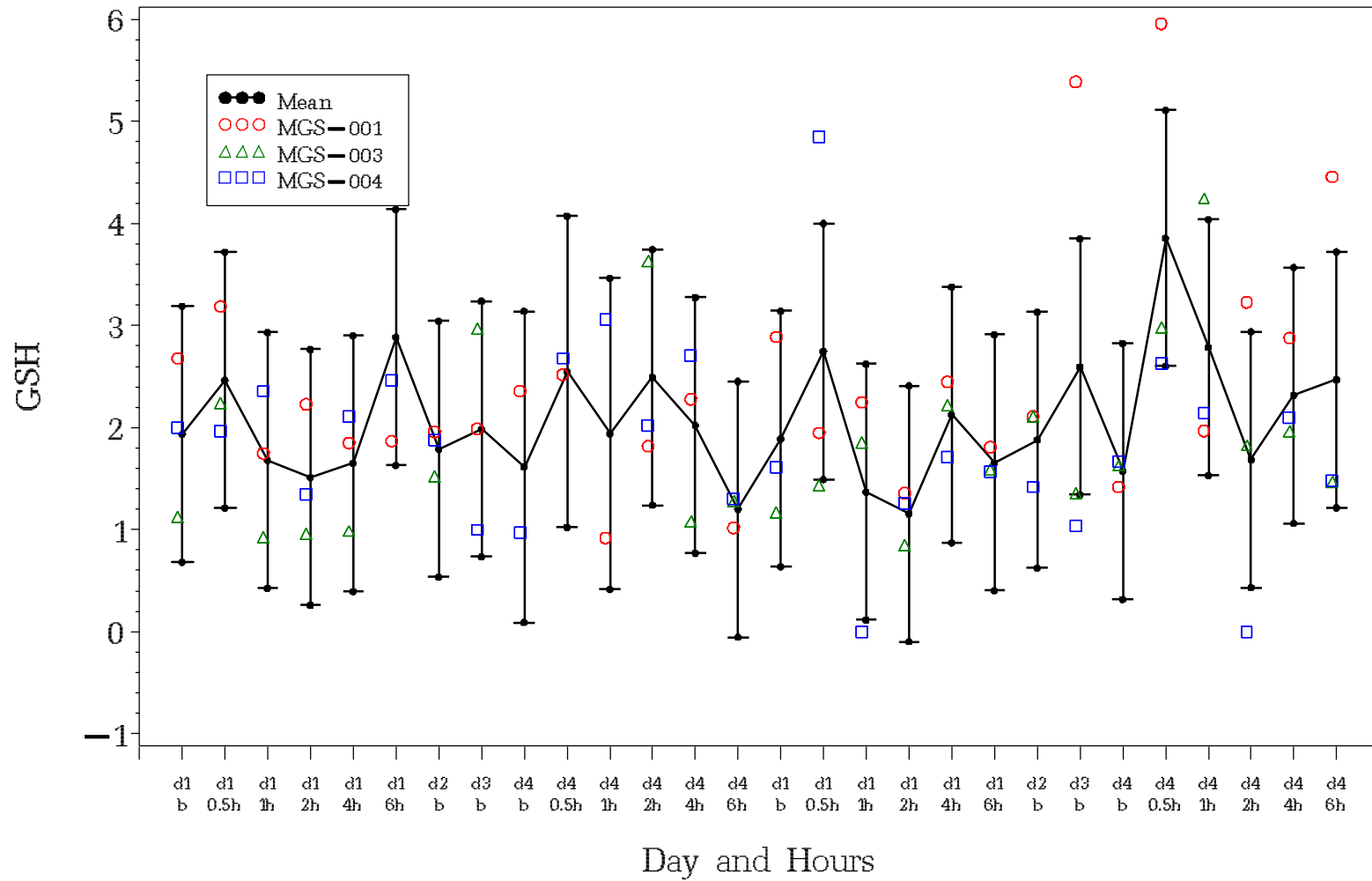
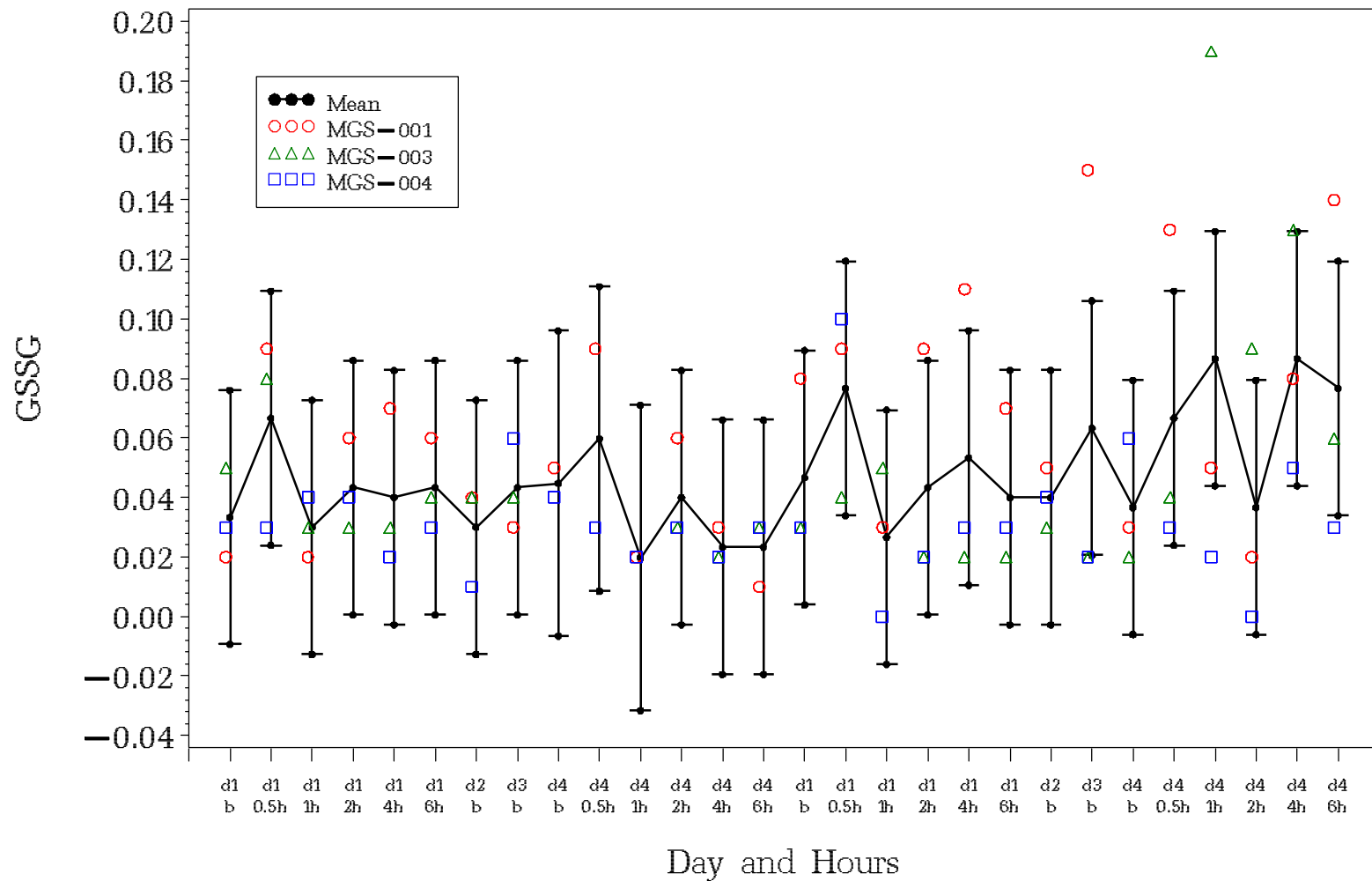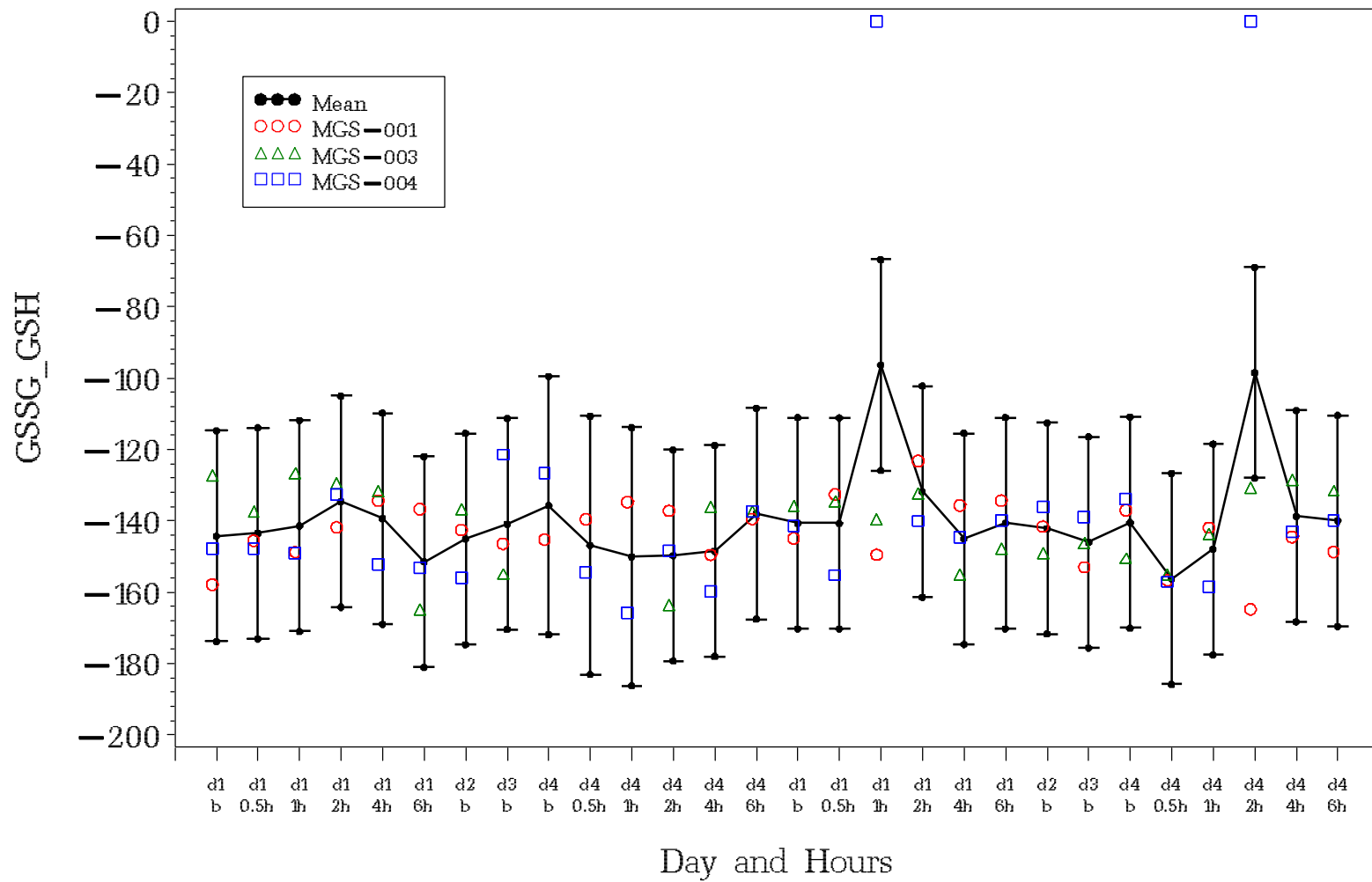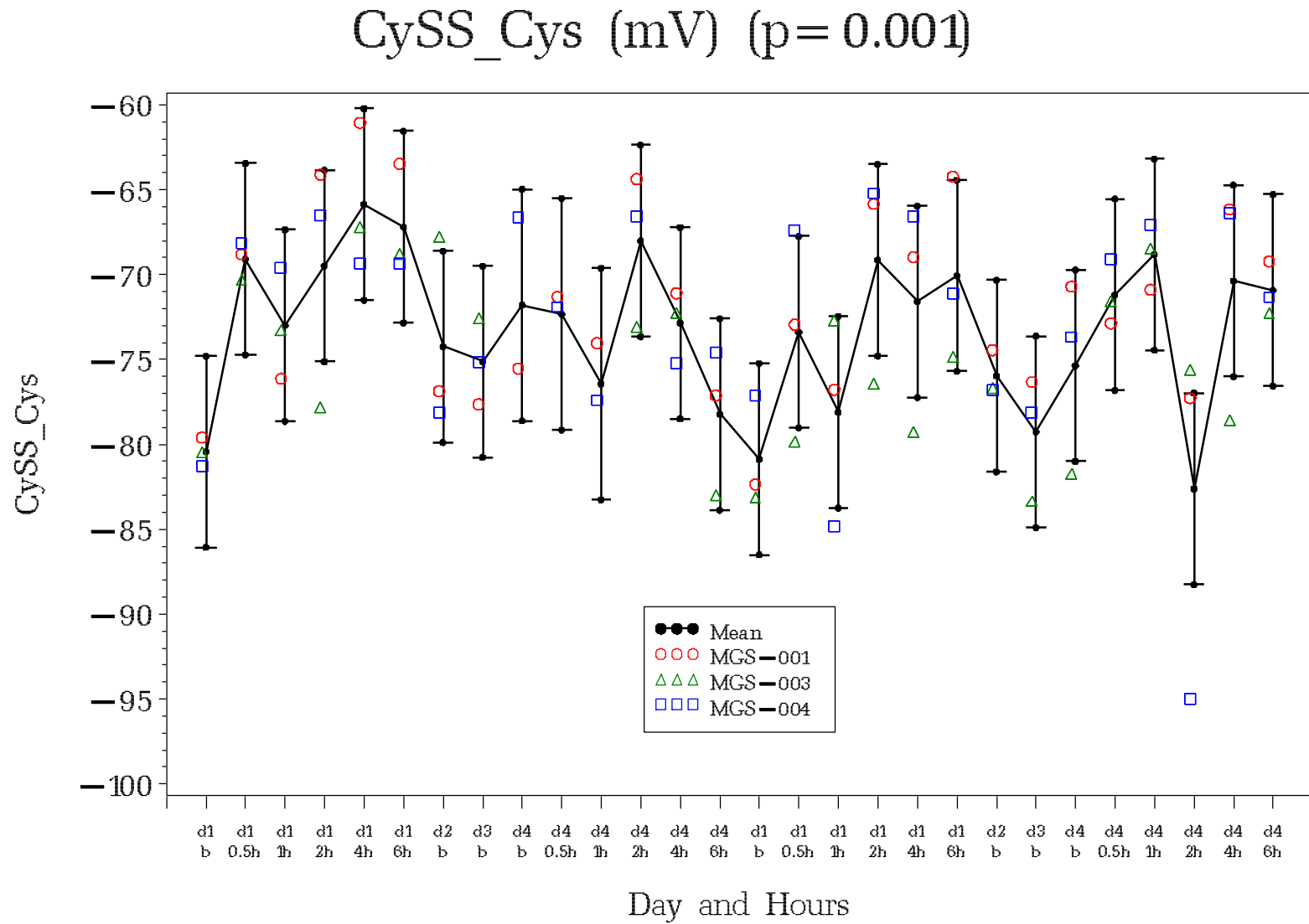# GSSG_GSH (mV) (p= 0.75)

First d1—d4, Data from Placebo; Second d1—d4, Data from Muscadine.

CySS_Cys (mV) (p= 0.001)

First d1—d4, Data from Placebo; Second d1—d4, Data from Muscadine.

Mixed Longitudinal Model Means for All Data Points

Measurement	Treatment	day	t	Variable	MGS-001	MGS-003	MGS-004	Mean	Standard Error	95% CI
1	Placebo	1	0.0	CySS	103.25	102.78	95.45	100.49	6.81	(86.83, 114.2)
2	Placebo	1	0.5	CySS	96.84	87.96	87.97	90.92	6.81	(77.26, 104.6)
3	Placebo	1	1.0	CySS	80.95	100.13	91.34	90.81	6.81	(77.14, 104.5)
4	Placebo	1	2.0	CySS	73.16	81.56	87.53	80.75	6.81	(67.08, 94.42)
5	Placebo	1	4.0	CySS	98.14	103.25	81.43	94.27	6.81	(80.61, 107.9)
6	Placebo	1	6.0	CySS	98.51	92.55	90.67	93.91	6.81	(80.24, 107.6)
7	Placebo	2	0.0	CySS	95.45	110.23	88.71	98.13	6.81	(84.46, 111.8)
8	Placebo	3	0.0	CySS	77.88	80.38	114.60	90.95	6.81	(77.29, 104.6)
9	Placebo	4	0.0	CySS	92.02	.	113.20	103.15	8.32	(86.44, 119.9)
10	Placebo	4	0.5	CySS	95.49	.	94.72	95.64	8.32	(78.93, 112.4)
11	Placebo	4	1.0	CySS	108.26	.	78.63	93.98	8.32	(77.27, 110.7)
12	Placebo	4	2.0	CySS	93.73	101.86	81.27	92.29	6.81	(78.62, 106.0)
13	Placebo	4	4.0	CySS	100.62	102.81	88.72	97.38	6.81	(83.72, 111.0)
14	Placebo	4	6.0	CySS	105.07	99.08	96.15	100.10	6.81	(86.43, 113.8)
15	Muscadine	1	0.0	CySS	98.13	102.50	102.07	100.90	6.81	(87.23, 114.6)
16	Muscadine	1	0.5	CySS	105.07	113.11	93.69	103.96	6.81	(90.29, 117.6)
17	Muscadine	1	1.0	CySS	89.12	97.00	93.78	93.30	6.81	(79.63, 107.0)
18	Muscadine	1	2.0	CySS	118.66	99.26	101.38	106.43	6.81	(92.77, 120.1)
19	Muscadine	1	4.0	CySS	86.29	103.64	93.08	94.34	6.81	(80.67, 108.0)
20	Muscadine	1	6.0	CySS	101.32	93.24	93.07	95.88	6.81	(82.21, 109.5)
21	Muscadine	2	0.0	CySS	89.32	91.69	83.03	88.01	6.81	(74.35, 101.7)

Mixed Longitudinal Model Means for All Data Points

Measurement	Treatment	day	t	Variable	MGS-001	MGS-003	MGS-004	Mean	Standard Error	95% CI
22	Muscadine	3	0.0	CySS	96.61	90.99	102.79	96.80	6.81	(83.13, 110.5)
23	Muscadine	4	0.0	CySS	98.58	96.73	102.27	99.19	6.81	(85.53, 112.9)
24	Muscadine	4	0.5	CySS	145.12	97.14	83.26	108.51	6.81	(94.84, 122.2)
25	Muscadine	4	1.0	CySS	95.16	88.19	91.87	91.74	6.81	(78.07, 105.4)
26	Muscadine	4	2.0	CySS	94.93	100.26	79.63	91.61	6.81	(77.94, 105.3)
27	Muscadine	4	4.0	CySS	87.97	105.26	85.50	92.91	6.81	(79.24, 106.6)
28	Muscadine	4	6.0	CySS	60.21	108.17	92.71	87.03	6.81	(73.36, 100.7)
1	Placebo	1	0.0	Cys	14.68	15.14	15.04	14.95	1.35	(12.24, 17.67)
2	Placebo	1	0.5	Cys	9.40	9.49	8.73	9.21	1.35	(6.49, 11.92)
3	Placebo	1	1.0	Cys	11.38	11.35	9.40	10.71	1.35	(7.99, 13.43)
4	Placebo	1	2.0	Cys	6.82	12.19	8.18	9.06	1.35	(6.35, 11.78)
5	Placebo	1	4.0	Cys	7.03	9.12	8.80	8.32	1.35	(5.60, 11.03)
6	Placebo	1	6.0	Cys	7.73	9.17	9.29	8.73	1.35	(6.01, 11.45)
7	Placebo	2	0.0	Cys	12.71	9.63	12.87	11.74	1.35	(9.02, 14.45)
8	Placebo	3	0.0	Cys	11.83	9.90	13.05	11.59	1.35	(8.88, 14.31)
9	Placebo	4	0.0	Cys	11.86	.	9.34	10.95	1.64	(7.66, 14.24)
10	Placebo	4	0.5	Cys	10.27	.	10.47	10.72	1.64	(7.43, 14.01)
11	Placebo	4	1.0	Cys	12.15	.	11.77	12.31	1.64	(9.02, 15.60)
12	Placebo	4	2.0	Cys	7.80	11.36	7.91	9.02	1.35	(6.31, 11.74)
13	Placebo	4	4.0	Cys	10.46	11.06	11.50	11.01	1.35	(8.29, 13.72)
14	Placebo	4	6.0	Cys	13.47	16.38	11.69	13.85	1.35	(11.13, 16.56)

Mixed Longitudinal Model Means for All Data Points

Measurement	Treatment	day	t	Variable	MGS-001	MGS-003	MGS-004	Mean	Standard Error	95% CI
15	Muscadine	1	0.0	Cys	15.91	16.76	13.28	15.32	1.35	(12.60, 18.03)
16	Muscadine	1	0.5	Cys	11.48	15.51	8.75	11.91	1.35	(9.20, 14.63)
17	Muscadine	1	1.0	Cys	12.24	10.92	17.11	13.42	1.35	(10.71, 16.14)
18	Muscadine	1	2.0	Cys	9.28	12.74	8.37	10.13	1.35	(7.41, 12.85)
19	Muscadine	1	4.0	Cys	8.93	14.52	8.46	10.64	1.35	(7.92, 13.35)
20	Muscadine	1	6.0	Cys	8.06	11.63	10.07	9.92	1.35	(7.20, 12.64)
21	Muscadine	2	0.0	Cys	11.21	12.37	11.82	11.80	1.35	(9.08, 14.52)
22	Muscadine	3	0.0	Cys	12.52	15.91	13.85	14.09	1.35	(11.38, 16.81)
23	Muscadine	4	0.0	Cys	10.19	15.41	11.64	12.41	1.35	(9.70, 15.13)
24	Muscadine	4	0.5	Cys	13.44	10.46	8.82	10.91	1.35	(8.19, 13.62)
25	Muscadine	4	1.0	Cys	10.09	8.86	8.57	9.17	1.35	(6.46, 11.89)
26	Muscadine	4	2.0	Cys	12.88	12.41	23.27	16.19	1.35	(13.47, 18.90)
27	Muscadine	4	4.0	Cys	8.09	14.26	8.05	10.13	1.35	(7.42, 12.85)
28	Muscadine	4	6.0	Cys	7.53	11.33	10.13	9.66	1.35	(6.95, 12.38)
1	Placebo	1	0.0	GSH	2.68	1.13	2.00	1.94	0.62	(0.68, 3.19)
2	Placebo	1	0.5	GSH	3.19	2.24	1.97	2.47	0.62	(1.21, 3.72)
3	Placebo	1	1.0	GSH	1.75	0.93	2.36	1.68	0.62	(0.43, 2.93)
4	Placebo	1	2.0	GSH	2.23	0.96	1.35	1.51	0.62	(0.26, 2.77)
5	Placebo	1	4.0	GSH	1.85	0.99	2.11	1.65	0.62	(0.40, 2.90)
6	Placebo	1	6.0	GSH	1.87	4.33	2.46	2.89	0.62	(1.63, 4.14)
7	Placebo	2	0.0	GSH	1.96	1.53	1.88	1.79	0.62	(0.54, 3.04)

Mixed Longitudinal Model Means for All Data Points

Measurement	Treatment	day	t	Variable	MGS-001	MGS-003	MGS-004	Mean	Standard Error	95% CI
8	Placebo	3	0.0	GSH	1.99	2.97	1.00	1.99	0.62	(0.73, 3.24)
9	Placebo	4	0.0	GSH	2.36	.	0.97	1.62	0.76	(0.09, 3.14)
10	Placebo	4	0.5	GSH	2.52	.	2.68	2.55	0.76	(1.03, 4.08)
11	Placebo	4	1.0	GSH	0.92	.	3.06	1.94	0.76	(0.42, 3.47)
12	Placebo	4	2.0	GSH	1.82	3.64	2.02	2.49	0.62	(1.24, 3.75)
13	Placebo	4	4.0	GSH	2.28	1.08	2.71	2.02	0.62	(0.77, 3.28)
14	Placebo	4	6.0	GSH	1.02	1.28	1.30	1.20	0.62	(-0.05, 2.45)
15	Muscadine	1	0.0	GSH	2.89	1.17	1.61	1.89	0.62	(0.64, 3.14)
16	Muscadine	1	0.5	GSH	1.95	1.44	4.85	2.75	0.62	(1.49, 4.00)
17	Muscadine	1	1.0	GSH	2.25	1.86	0.00	1.37	0.62	(0.12, 2.62)
18	Muscadine	1	2.0	GSH	1.36	0.85	1.26	1.16	0.62	(-0.10, 2.41)
19	Muscadine	1	4.0	GSH	2.45	2.22	1.71	2.13	0.62	(0.87, 3.38)
20	Muscadine	1	6.0	GSH	1.81	1.59	1.57	1.66	0.62	(0.40, 2.91)
21	Muscadine	2	0.0	GSH	2.11	2.11	1.42	1.88	0.62	(0.63, 3.13)
22	Muscadine	3	0.0	GSH	5.39	1.36	1.04	2.60	0.62	(1.34, 3.85)
23	Muscadine	4	0.0	GSH	1.42	1.63	1.67	1.57	0.62	(0.32, 2.83)
24	Muscadine	4	0.5	GSH	5.96	2.98	2.63	3.86	0.62	(2.60, 5.11)
25	Muscadine	4	1.0	GSH	1.97	4.25	2.14	2.79	0.62	(1.53, 4.04)
26	Muscadine	4	2.0	GSH	3.23	1.83	0.00	1.69	0.62	(0.43, 2.94)
27	Muscadine	4	4.0	GSH	2.88	1.97	2.10	2.32	0.62	(1.06, 3.57)
28	Muscadine	4	6.0	GSH	4.46	1.47	1.48	2.47	0.62	(1.22, 3.72)

Mixed Longitudinal Model Means for All Data Points

Measurement	Treatment	day	t	Variable	MGS-001	MGS-003	MGS-004	Mean	Standard Error	95% CI
1	Placebo	1	0.0	GSSG	0.02	0.05	0.03	0.03	0.02	(-0.01, 0.08)
2	Placebo	1	0.5	GSSG	0.09	0.08	0.03	0.07	0.02	(0.02, 0.11)
3	Placebo	1	1.0	GSSG	0.02	0.03	0.04	0.03	0.02	(-0.01, 0.07)
4	Placebo	1	2.0	GSSG	0.06	0.03	0.04	0.04	0.02	(0.00, 0.09)
5	Placebo	1	4.0	GSSG	0.07	0.03	0.02	0.04	0.02	(-0.00, 0.08)
6	Placebo	1	6.0	GSSG	0.06	0.04	0.03	0.04	0.02	(0.00, 0.09)
7	Placebo	2	0.0	GSSG	0.04	0.04	0.01	0.03	0.02	(-0.01, 0.07)
8	Placebo	3	0.0	GSSG	0.03	0.04	0.06	0.04	0.02	(0.00, 0.09)
9	Placebo	4	0.0	GSSG	0.05	.	0.04	0.04	0.03	(-0.01, 0.10)
10	Placebo	4	0.5	GSSG	0.09	.	0.03	0.06	0.03	(0.01, 0.11)
11	Placebo	4	1.0	GSSG	0.02	.	0.02	0.02	0.03	(-0.03, 0.07)
12	Placebo	4	2.0	GSSG	0.06	0.03	0.03	0.04	0.02	(-0.00, 0.08)
13	Placebo	4	4.0	GSSG	0.03	0.02	0.02	0.02	0.02	(-0.02, 0.07)
14	Placebo	4	6.0	GSSG	0.01	0.03	0.03	0.02	0.02	(-0.02, 0.07)
15	Muscadine	1	0.0	GSSG	0.08	0.03	0.03	0.05	0.02	(0.00, 0.09)
16	Muscadine	1	0.5	GSSG	0.09	0.04	0.10	0.08	0.02	(0.03, 0.12)
17	Muscadine	1	1.0	GSSG	0.03	0.05	0.00	0.03	0.02	(-0.02, 0.07)
18	Muscadine	1	2.0	GSSG	0.09	0.02	0.02	0.04	0.02	(0.00, 0.09)
19	Muscadine	1	4.0	GSSG	0.11	0.02	0.03	0.05	0.02	(0.01, 0.10)
20	Muscadine	1	6.0	GSSG	0.07	0.02	0.03	0.04	0.02	(-0.00, 0.08)
21	Muscadine	2	0.0	GSSG	0.05	0.03	0.04	0.04	0.02	(-0.00, 0.08)

Mixed Longitudinal Model Means for All Data Points

Measurement	Treatment	day	t	Variable	MGS-001	MGS-003	MGS-004	Mean	Standard Error	95% CI
22	Muscadine	3	0.0	GSSG	0.15	0.02	0.02	0.06	0.02	(0.02, 0.11)
23	Muscadine	4	0.0	GSSG	0.03	0.02	0.06	0.04	0.02	(-0.01, 0.08)
24	Muscadine	4	0.5	GSSG	0.13	0.04	0.03	0.07	0.02	(0.02, 0.11)
25	Muscadine	4	1.0	GSSG	0.05	0.19	0.02	0.09	0.02	(0.04, 0.13)
26	Muscadine	4	2.0	GSSG	0.02	0.09	0.00	0.04	0.02	(-0.01, 0.08)
27	Muscadine	4	4.0	GSSG	0.08	0.13	0.05	0.09	0.02	(0.04, 0.13)
28	Muscadine	4	6.0	GSSG	0.14	0.06	0.03	0.08	0.02	(0.03, 0.12)
1	Placebo	1	0.0	GSSG-GSH	-157.80	-127.20	-147.82	-144.3	14.73	(-174, -115)
2	Placebo	1	0.5	GSSG-GSH	-145.54	-137.20	-147.66	-143.5	14.73	(-173, -114)
3	Placebo	1	1.0	GSSG-GSH	-148.74	-126.58	-148.94	-141.4	14.73	(-171, -112)
4	Placebo	1	2.0	GSSG-GSH	-141.81	-129.41	-132.52	-134.6	14.73	(-164, -105)
5	Placebo	1	4.0	GSSG-GSH	-134.33	-131.66	-152.05	-139.3	14.73	(-169, -110)
6	Placebo	1	6.0	GSSG-GSH	-136.66	-164.72	-153.07	-151.5	14.73	(-181, -122)
7	Placebo	2	0.0	GSSG-GSH	-142.51	-136.69	-155.96	-145.1	14.73	(-175, -115)
8	Placebo	3	0.0	GSSG-GSH	-146.40	-154.84	-121.37	-140.9	14.73	(-170, -111)
9	Placebo	4	0.0	GSSG-GSH	-145.23	.	-126.45	-135.7	18.03	(-172, -99.5)
10	Placebo	4	0.5	GSSG-GSH	-139.56	.	-154.42	-146.8	18.03	(-183, -111)
11	Placebo	4	1.0	GSSG-GSH	-134.71	.	-165.63	-150.0	18.03	(-186, -114)
12	Placebo	4	2.0	GSSG-GSH	-137.13	-163.54	-148.42	-149.7	14.73	(-179, -120)
13	Placebo	4	4.0	GSSG-GSH	-149.51	-136.08	-159.64	-148.4	14.73	(-178, -119)
14	Placebo	4	6.0	GSSG-GSH	-139.42	-137.34	-137.22	-138.0	14.73	(-168, -108)

Mixed Longitudinal Model Means for All Data Points

Measurement	Treatment	day	t	Variable	MGS-001	MGS-003	MGS-004	Mean	Standard Error	95% CI
15	Muscadine	1	0.0	GSSG-GSH	-144.90	-135.64	-141.34	-140.6	14.73	(-170, -111)
16	Muscadine	1	0.5	GSSG-GSH	-132.59	-134.35	-155.15	-140.7	14.73	(-170, -111)
17	Muscadine	1	1.0	GSSG-GSH	-149.44	-139.54	0.00	-96.33	14.73	(-126, -66.8)
18	Muscadine	1	2.0	GSSG-GSH	-123.21	-132.17	-140.02	-131.8	14.73	(-161, -102)
19	Muscadine	1	4.0	GSSG-GSH	-135.65	-154.95	-144.45	-145.0	14.73	(-175, -115)
20	Muscadine	1	6.0	GSSG-GSH	-134.28	-147.72	-139.85	-140.6	14.73	(-170, -111)
21	Muscadine	2	0.0	GSSG-GSH	-141.55	-148.87	-135.98	-142.1	14.73	(-172, -113)
22	Muscadine	3	0.0	GSSG-GSH	-152.96	-146.12	-138.89	-146.0	14.73	(-176, -116)
23	Muscadine	4	0.0	GSSG-GSH	-136.98	-150.43	-133.98	-140.5	14.73	(-170, -111)
24	Muscadine	4	0.5	GSSG-GSH	-156.64	-155.11	-157.07	-156.3	14.73	(-186, -127)
25	Muscadine	4	1.0	GSSG-GSH	-141.89	-143.66	-158.34	-148.0	14.73	(-178, -118)
26	Muscadine	4	2.0	GSSG-GSH	-164.74	-130.69	0.00	-98.48	14.73	(-128, -68.9)
27	Muscadine	4	4.0	GSSG-GSH	-144.49	-128.59	-142.99	-138.7	14.73	(-168, -109)
28	Muscadine	4	6.0	GSSG-GSH	-148.64	-131.46	-139.84	-140.0	14.73	(-170, -110)
1	Placebo	1	0.0	CySS-Cys	-79.59	-80.45	-81.25	-80.43	2.81	(-86.1, -74.8)
2	Placebo	1	0.5	CySS-Cys	-68.80	-70.31	-68.14	-69.08	2.81	(-74.7, -63.4)
3	Placebo	1	1.0	CySS-Cys	-76.12	-73.28	-69.57	-72.99	2.81	(-78.6, -67.4)
4	Placebo	1	2.0	CySS-Cys	-64.11	-77.82	-66.51	-69.48	2.81	(-75.1, -63.8)
5	Placebo	1	4.0	CySS-Cys	-61.05	-67.17	-69.34	-65.85	2.81	(-71.5, -60.2)
6	Placebo	1	6.0	CySS-Cys	-63.47	-68.75	-69.35	-67.19	2.81	(-72.8, -61.6)
7	Placebo	2	0.0	CySS-Cys	-76.85	-67.75	-78.13	-74.24	2.81	(-79.9, -68.6)

Mixed Longitudinal Model Means for All Data Points

Measurement	Treatment	day	t	Variable	MGS-001	MGS-003	MGS-004	Mean	Standard Error	95% CI
8	Placebo	3	0.0	CySS-Cys	-77.63	-72.58	-75.16	-75.12	2.81	(-80.8, -69.5)
9	Placebo	4	0.0	CySS-Cys	-75.52	.	-66.60	-71.79	3.40	(-78.6, -65.0)
10	Placebo	4	0.5	CySS-Cys	-71.31	.	-71.90	-72.33	3.40	(-79.2, -65.5)
11	Placebo	4	1.0	CySS-Cys	-74.03	.	-77.39	-76.44	3.40	(-83.3, -69.6)
12	Placebo	4	2.0	CySS-Cys	-64.37	-73.08	-66.58	-68.01	2.81	(-73.6, -62.4)
13	Placebo	4	4.0	CySS-Cys	-71.09	-72.26	-75.19	-72.85	2.81	(-78.5, -67.2)
14	Placebo	4	6.0	CySS-Cys	-77.11	-82.98	-74.58	-78.22	2.81	(-83.9, -72.6)
15	Muscadine	1	0.0	CySS-Cys	-82.34	-83.13	-77.12	-80.86	2.81	(-86.5, -75.2)
16	Muscadine	1	0.5	CySS-Cys	-72.94	-79.83	-67.38	-73.38	2.81	(-79.0, -67.7)
17	Muscadine	1	1.0	CySS-Cys	-76.77	-72.69	-84.83	-78.10	2.81	(-83.7, -72.5)
18	Muscadine	1	2.0	CySS-Cys	-65.83	-76.40	-65.20	-69.14	2.81	(-74.8, -63.5)
19	Muscadine	1	4.0	CySS-Cys	-68.97	-79.25	-66.56	-71.59	2.81	(-77.2, -66.0)
20	Muscadine	1	6.0	CySS-Cys	-64.22	-74.86	-71.11	-70.06	2.81	(-75.7, -64.4)
21	Muscadine	2	0.0	CySS-Cys	-74.44	-76.67	-76.78	-75.96	2.81	(-81.6, -70.3)
22	Muscadine	3	0.0	CySS-Cys	-76.32	-83.33	-78.12	-79.26	2.81	(-84.9, -73.6)
23	Muscadine	4	0.0	CySS-Cys	-70.69	-81.70	-73.67	-75.35	2.81	(-81.0, -69.7)
24	Muscadine	4	0.5	CySS-Cys	-72.86	-71.56	-69.11	-71.18	2.81	(-76.8, -65.5)
25	Muscadine	4	1.0	CySS-Cys	-70.88	-68.48	-67.07	-68.81	2.81	(-74.4, -63.2)
26	Muscadine	4	2.0	CySS-Cys	-77.27	-75.60	-94.97	-82.61	2.81	(-88.3, -77.0)
27	Muscadine	4	4.0	CySS-Cys	-66.15	-78.57	-66.37	-70.36	2.81	(-76.0, -64.7)
28	Muscadine	4	6.0	CySS-Cys	-69.21	-72.22	-71.33	-70.92	2.81	(-76.6, -65.3)

Comparison between Placebo and Muscadine

Variable	Contrast	Mean ± SEM	p-Value
Cys	Placebo Day1[b,0.5,1,2,4hr] vs Placebo Day4[b,0.5,1,2,4hr]	10.45±0.71 vs 10.80±0.78	0.69
Cys	Muscadine Day1[b,0.5,1,2,4hr] vs Muscadine Day4[b,0.5,1,2,4hr]	12.28±0.71 vs 11.76±0.71	0.52
Cys	Pre- Placebo Day1[b,0.5,1,2,4hr] vs Pre- Muscadine Day1[b,0.5,1,2,4hr]	10.45±0.71 vs 12.28±0.71	0.03
Cys	Post- Placebo Day4[b,0.5,1,2,4hr] vs Post- Muscadine Day4[b,0.5,1,2,4hr]	10.80±0.78 vs 11.76±0.71	0.28
CySS-Cys	Placebo Day1[b,0.5,1,2,4hr] vs Placebo Day4[b,0.5,1,2,4hr]	-71.57±1.48 vs -72.28±1.63	0.70
CySS-Cys	Muscadine Day1[b,0.5,1,2,4hr] vs Muscadine Day4[b,0.5,1,2,4hr]	-74.62±1.48 vs -73.66±1.48	0.57
CySS-Cys	Pre- Placebo Day1[b,0.5,1,2,4hr] vs Pre- Muscadine Day1[b,0.5,1,2,4hr]	-71.57±1.48 vs -74.62±1.48	0.08
CySS-Cys	Post- Placebo Day4[b,0.5,1,2,4hr] vs Post- Muscadine Day4[b,0.5,1,2,4hr]	-72.28±1.63 vs -73.66±1.48	0.45