

Novel dihydroartemisinin dimer containing nitrogen atoms inhibits growth of endometrial cancer cells and may correlate with increasing intracellular peroxynitrite

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V (mm <sup>3</sup> ) = 1/2 × a × b <sup>2</sup> = 1/2 × major axis × minor axis × minor axis      Double figures mean there are two separate tumours and the volume is calculated by adding both together														
Group	NO.	0 (Before dosing)				Dosing started --1st				2nd				
		Body Weight(g)	Major axis(mm)	Minor axis(mm)	Volum (mm3)	B.W(g)	Major axis(mm)	Minor axis(mm)	Volum (mm3)	B.W(g)	Major axis(mm)	Minor axis(mm)	Volum (mm3)	
control	37	23.5	7.33	5.46	109.26	23.0	7.64	6.50	161.40	23.1	8.36	6.60	182.08	
	56	20.7	6.27	5.49	94.49	21.4	6.93	6.09	128.51	21.9	7.99	6.51	169.31	
	66	22.0	5.72/6.48	4.05/4.63	116.36	22.6	6.45/6.91	4.85/5.13	166.78	23.4	7.00/7.42	4.75/6.42	231.88	
	79	23.2	8.37	5.98	149.66	23.6	9.42	6.29	186.35	25.3	10.89	7.93	342.41	
	91	22.3	8.42	4.58	88.31	23.3	9.08	5.06	116.24	23.7	10.21	5.41	149.41	
	120	20.9	7.23	4.98	89.65	21.3	7.76	5.43	114.40	21.7	8.17	6.45	169.95	
	5	22.1	8.37	5.81	141.27	22.6	9.11	5.51	138.29	23.5	9.59/5.30	7.05/3.07	263.30	
	77	23.8	7.49	5.11	97.79	22.7	10.57	5.45	156.98	23.0	10.94	6.04	199.55	
ava					110.85						146.12			
SD					23.48						25.82			
carbo 3mg/kg	119	21.1	8.10	6.71	182.35	21.4	8.42	6.25	164.45	20.7	8.08	5.83	137.32	
	36	21.4	6.97	5.00	87.13	21.6	7.44	4.85	87.50	22.2	7.47	5.3	104.92	
	60	22.9	6.28/3.71	4.44/3.51	84.75	23.5	6.38/3.59	4.80/2.45	84.27	23.3	7.17/4.19	4.89/3.65	113.63	
	35	21.1	9.82	4.92	118.85	21.3	10.97	6.37	222.56	22.9	11.60	6.54	248.08	
	111	20.5	6.91	5.05	88.11	21.2	8.19	5.62	129.34	21.3	9.01	5.50	136.28	
	75	22.8	7.03/3.85	4.77/2.84	95.50	22.3	6.73/3.85	4.70/3.85	102.86	23.3	8.27/3.77	5.60/3.36	150.95	
	84	21.1	6.97	4.49	70.26	22.5	7.67	5.64	121.99	22.4	8.55	6.43	176.75	
	80	24.6	5.66	5.13	74.48	24.6	6.28	5.95	111.16	24.5	7.09	5.94	125.08	
ava					100.18						128.02			
SD					36.32						45.95			
1044 2.5mg/kg	4	22.1	7.00	5.75	115.72	22.1	8.42	6.60	183.39	21.5	8.73	4.21	77.37	
	32	24.3	6.27	4.94	76.51	24.8	7.24	6.14	136.47	24.5	7.91	6.56	170.20	
	38	21.8	5.40/3.81	4.33/3.18	69.88	22.7	6.87	5.44	101.65	21.5	9.56	6.54	204.45	
	42	23.3	5.04/6.18	4.93/2.70	83.78	23.9	7.36/6.27	5.71/3.22	152.49	24.0	8.02/7.39	6.47/4.12	230.58	
	58	22.0	6.49/3.94/5.97	3.47/3.55/4.07	113.35	22.8	7.69/9.51	5.65/4.39	214.38	22.6	15.30	5.99	274.48	
	94	23.7	7.20	4.61	76.51	24.8	8.75	5.62	138.18	23.2	9.15	6.47	191.51	
ava					89.29						154.43			
SD					20.06						39.52			
1044 5mg/kg	46	22.1	6.58	5.44	97.36	21.1	8.80	4.53	90.29	17.9	6.60	6.12	123.60	
	67	23.6	7.31	5.05	93.21	22.9	7.94	6.07	146.27	22.0	8.04	5.89	139.46	
	83	22.9	5.54/4.09	5.34/3.08	98.39	23.3	7.74	6.02	140.25	20.1	6.82	5.45	101.29	
	107	24.1	7.51	5.39	109.09	24.2	7.95	6.01	143.58	22.8	8.73	6.52	185.56	
	116	23.3	6.99	5.63	110.78	23.4	7.28	5.14	96.17	20.5	8.25	5.51	125.24	
	118	22.6	7.69	5.52	117.16	22.2	7.89	5.66	126.38	19.5	8.51	5.21	115.50	
ava					104.33						123.82			
SD					9.34						24.74			

V (mm<sup>3</sup>) = 1/2 × a × b<sup>2</sup> = 1/2 × major axis × minor axis × minor axis

Group	NO.	3rd				4th				5th				6th										
		B.W(g)	Major axis(mm)	Minor axis(mm)	Volum (mm3)	B.W(g)	Major axis(mm)	Minor axis(mm)	Volum (mm3)	B.W (g)	Major axis(mm)	Minor axis (mm)	Volum (mm3)	B.W(g)	Major axis(mm)	Minor axis(mm)	Volum (mm3)							
control	37	23.3	9.53	7.83	292.14	23.9	11.21	7.77	338.39	23.3	11.57	9.59	532.04	25.1	12.25	9.70	576.30							
	56	22.5	8.66	6.54	185.20	22.9	9.73	6.65	215.14	23.0	11.04	8.05	357.71	23.2	12.00	8.29	412.34							
	66	23.9	8.10/7.52	5.68/5.69	252.40	23.5	8.73/7.58	5.98/5.33	263.76	23.7	13.53	9.16	567.62	24.6	15.20	10.23	795.36							
	79	24.7	12.16	8.12	400.88	26.0	13.01	8.73	495.76	25.5	14.93	9.42	662.42	25.4	17.61	7.63	512.60							
	91	24.7	11.35	6.27	223.10	23.4	12.78	6.04	233.12	22.7	13.17	7.29	349.95	23.2	15.78	8.17	526.65							
	120	21.6	8.22	6.27	161.58	21.1	9.46	6.95	228.47	20.8	9.85	7.73	294.28	20.5	10.81	9.23	460.47							
	5	23.8	11.08/5.87	7.58/3.00	344.72	23.2	12.03	7.90	375.40	22.9	13.94	9.25	596.37	23.4	14.46/6.41	8.72/4.46	613.51							
	77	21.5	10.87	5.80	182.83	24.0	11.76	6.62	257.69	23.6	11.30	6.48	237.25	23.5	12.60	6.54	269.46							
ava					255.36					300.97					449.70					520.84				
SD					84.97					96.64					158.18					153.87				

carbo 3mg/kg	119	21.4	9.37	6.46	195.51	21.9	9.65	7.01	237.10	21.5	12.10	7.19	312.76	21.8	12.93	8.27	442.16							
	36	22.6	9.28	6.4	190.05	22.2	9.57	6.85	224.52	22.6	11.45	8.11	376.55	22.8	12.25	9.00	496.13							
	60	23.5	8.05/5.93	6.55/4.64	236.52	23.3	6.71/8.70	4.86/6.75	277.44	23.8	12.50	7.93	393.03	23.6	13.18	9.45	588.50							
	35	23.2	12.93	6.41	265.63	22.7	13.26	7.54	376.93	21.9	14.09	10.08	715.82	22.1	15.65	10.58	875.90							
	111	21.0	9.67	6.74	219.64	21.1	10.15	6.76	231.92	20.8	10.84	6.76	247.68	20.4	11.38	8.00	364.16							
	75	23.7	8.93/4.02	6.13/3.75	196.05	23.7	9.73/4.74	6.62/3.92	249.62	23.4	10.04/5.44	7.54/4.21	333.60	23.9	11.08/7.23	7.70/5.52	438.62							
	84	21.9	8.78	6.38	178.69	23.5	9.31	6.43	192.46	22.6	10.82	6.69	242.13	22.6	11.35	8.15	376.95							
	80	24.3	7.41	6.62	162.37	25.0	7.81	9.49	351.68	24.7	8.90	7.23	232.61	25.4	9.69	7.42	266.75							
ava					205.56					267.71					356.77					481.15				
SD					33.35					64.53					157.46					185.71				

1044 2.5mg/kg	4	21.8	10.82	7.19	279.68	21.0	9.78	7.49	274.33	21.2	11.86	8.94	473.95	22.3	11.64	9.52	527.47							
	32	23.8	8.09	7.06	201.62	23.9	9.07	6.60	197.54	23.8	9.63	7.57	275.92	24.5	10.73	6.59	232.99							
	38	21.8	10.39	6.83	242.34	21.7	10.27	6.64	226.40	21.9	11.01	7.99	351.44	23.0	11.46	7.60	330.96							
	42	23.3	10.48	7.34	282.31	23.2	8.47/8.71	8.33/4.30	374.39	23.1	8.94/9.09	8.59/5.76	480.62	24.2	12.73	9.32	552.88							
	58	22.4	9.06/11.07	4.67/6.47	330.49	22.3	12.08/10.18	7.23/5.34	460.87	22.7	11.45/12.40	7.13/8.21	708.95	23.7	17.10	10.62	964.31							
	94	23.4	10.21	7.18	263.28	22.9	10.39	8.08	339.16	23.0	11.35	7.71	337.35	24.1	11.27	8.41	398.55							
ava					266.62					312.12					438.04					501.19				
SD					43.18					98.63					155.19					256.62				

1044 5mg/kg	46	19.4	7.34	6.76	167.71	19.8	8.29	7.53	235.03	20.8	8.53	7.91	266.85	20.9	9.35	7.90	291.77							
	67	22.1	9.20	6.57	198.56	22.2	9.34	6.45	194.28	23.9	9.61	6.65	212.49	23.9	9.72	7.63	282.93							
	83	23.6	8.27	6.70	185.62	22.9	7.87	7.51	221.93	23.3	9.83	7.08	246.37	23.2	9.66/5.56	7.41/4.56	323.01							
	107	24.5	9.53	6.26	186.73	24.4	8.83	7.32	236.57	25.2	10.32	7.65	301.98	25.2	11.67	8.26	398.11							
	116	24.5	8.28	6.07	152.54	23.8	10.20	6.55	218.80	24.5	10.38	7.05	257.96	23.8	12.49	7.36	338.29							
	118	21.3	8.32	6.07	153.27	20.6	9.56	6.96	231.55	21.5	10.13	7.60	292.55	21.0	11.41	7.91	356.95							
ava					174.07					223.03					263.03					331.84				
SD					19.13					15.78					32.44					42.75				

$$V \text{ (mm}^3\text{)} = 1/2 \times a \times b^2 = 1/2 \times \text{major axis} \times \text{minor axis} \times \text{minor axis}$$

Group	NO.	7th				8th				9th				10th					
		B.W(g)	Major axis(mm)	Minor axis(mm)	Volum (mm3)	B.W(g)	Major axis (mm)	Minor axis(mm)	Volum (mm3)	B.W(g)	Major axis(mm)	Minor axis(mm)	Volum (mm3)	B.W(g)	Major axis(mm)	Minor axis(mm)	Volum (mm3)		
control	37	24.5	13.26	9.57	607.21	23.7	13.15	10.12	673.37	23.6	14.27	10.26	751.08	23.4	15.27	10.97	918.80		
	56	23.4	12.67	8.28	434.32	23.0	13.52	9.28	582.16	22.8	14.57	9.70	685.45	23.2	15.39	10.08	781.86		
	66	25.1	16.59	10.86	978.31	24.0	16.72	12.07	1217.93	24.7	17.84	12.70	1438.71	24.6	17.87	13.31	1582.89		
	79	24.9	18.30	11.43	1195.40	26.0	19.81	11.85	1390.88	25.7	20.81	12.46	1615.39	25.9	21.72	12.73	1759.89		
	91	22.3	16.09	8.80	623.00	23.9	17.63	9.33	767.34	24.1	18.72	9.94	924.80	23.4	19.65	10.99	1186.66		
	120	21.0	10.72	9.59	492.95	19.8	11.12	8.87	437.44	21.0	12.43	10.63	702.28	20.8	12.35	10.43	671.75		
	5	24.0	15.63	9.62	723.23	24.4	18.00	9.11	746.93	24.7	18.06	9.76	860.18	24.4	18.67	9.10	773.03		
	77	24.1	14.43	7.79	437.84	24.5	14.11	8.04	456.05	25.1	14.67	8.33	508.97	24.9	15.06	9.25	644.29		
ava					686.53					784.01					935.86				
SD					272.21					346.18					388.06				

carbo 3mg/kg	119	22.8	14.35	8.42	508.68	23.5	14.93	10.46	816.76	23.3	15.36	10.20	799.03	23.3	16.99	10.82	994.53		
	36	22.4	13.33	8.94	532.69	22.0	14.86	10.27	783.66	22.2	15.95	11.18	996.81	21.8	16.07	11.33	1031.44		
	60	23.4	13.79	9.01	559.74	24.2	14.48	10.39	781.57	23.3	16.20	11.54	1078.69	23.3	16.49	12.11	1209.15		
	35	21.7	15.78	11.00	954.69	23.0	15.96	8.88	629.26	22.6	16.75	10.17	866.22	22.2	16.62	10.37	893.63		
	111	19.1	11.93	8.51	431.99	19.7	12.64	8.81	490.53	19.5	14.69	9.01	596.27	19.6	15.08	9.18	635.41		
	75	23.4	11.01/6.87	8.60/5.74	520.32	23.6	11.67/7.70	8.62/5.71	559.09	23.4	11.82/8.09	9.39/6.59	696.76	23.1	13.03/8.83	9.95/6.86	852.77		
	84	21.2	12.74	8.58	468.94	20.7	12.99	8.16	432.47	21.9	13.36	8.57	490.61	21.8	13.69	9.69	642.72		
	80	25.6	9.10	7.58	261.43	25.7	8.91	7.08	223.31	26.1	9.80	7.82	299.65	24.8	9.40	7.88	291.84		
ava					529.81					589.58					728.00				
SD					195.40					206.08					261.20				

1044 2.5mg/kg	4	22.0	12.44	9.88	607.16	21.6	12.70	9.60	585.22	21.9	13.65	5.93	240.00	22.3	13.81	9.96	684.99		
	32	25.0	10.18	8.40	359.15	23.9	8.75	8.64	326.59	23.9	9.01	8.66	337.86	23.9	10.08	9.61	465.45		
	38	22.9	10.73	7.69	317.27	22.5	11.33	7.71	336.75	22.5	11.41	7.56	326.06	22.2	11.26	7.75	338.15		
	42	25.0	11.83/7.58	6.47/7.01	433.85	24.1	11.67/7.78	6.87/6.99	465.46	24.3	13.05/6.88	7.76/6.65	545.06	24.2	13.48/8.12	7.23/7.12	558.14		
	58	23.8	16.92	12.93	1414.38	22.6	16.63	13.24	1457.60	23.7	16.86	12.55	1327.75	23.5	17.33	13.17	1502.93		
	94	23.8	11.39	8.68	429.07	23.2	13.29	9.69	623.94	23.4	13.53	9.47	606.69	22.5	12.29	10.14	631.83		
ava					593.48					632.59					563.90				
SD					414.19					422.39					399.56				

1044 5mg/kg	46	21.3	8.95	7.62	259.84	22.5	9.91	9.21	420.30	22.0	11.16	8.77	429.17	22.3	11.54	9.02	469.45		
	67	24.1	10.66	7.92	334.33	25.4	10.20	8.19	342.09	23.9	11.32	7.82	346.12	23.5	10.98	8.07	357.54		
	83	23.4	10.84	7.93	340.84	24.0	11.17	8.00	357.44	23.2	10.86/6.70	8.15/6.48	501.34	23.5	12.54	9.65	583.88		
	107	25.2	12.12	7.50	340.88	26.0	13.77	10.15	709.31	25.9	14.50	9.67	677.94	26.0	15.22	10.44	829.44		
	116	24.3	10.81	7.29	287.24	25.1	12.52	7.36	339.10	23.8	13.36	7.36	361.85	24.9	13.74	8.11	451.97		
	118	22.2	11.35	7.11	286.88	23.1	11.58	7.74	346.87	21.5	12.52	8.27	428.14	22.5	14.38	9.29	620.53		
ava					308.33					419.18					457.43				
SD					34.78					145.31					121.44				

$$V \text{ (mm}^3\text{)} = 1/2 \times a \times b^2 = 1/2 \times \text{major axis} \times \text{minor axis} \times \text{minor axis}$$

		11th				12th (the last time )				Anatomy						
Group	NO.	B.W(g)	Major axis(mm)	Minor axis(mm)	Volum (mm3)	B.W(g)	Major axis(mm)	Minor axis(mm)	Volum (mm3)	weight of tumor(g)	liver (g)	Kidney (g)	Coefficient of liver	Coefficient of kidney		
control	37	23.0	15.47	10.97	930.84	24.3	15.43	12.26	1159.62	0.727	1.511	0.315	0.0622	0.0130		
	56	23.8	15.73	10.77	912.28	23.6	16.35	10.83	958.84	0.727	1.511	0.315	0.0640	0.0133		
	66	25.2	18.35	14.03	1806.02	24.5	18.82	14.82	2066.74	1.252	1.638	0.369	0.0669	0.0151		
	79	26.5	22.14	14.43	2305.05	26.7	23.32	13.65	2172.52	1.775	1.778	0.339	0.0666	0.0127		
	91	24.0	21.21	11.63	1434.40	23.9	22.21	12.08	1620.51	1.701	1.392	0.326	0.0582	0.0136		
	120	21.6	12.61	10.91	750.47	21.5	12.78/9.07	8.44/9.06	827.43	0.804	1.184	0.263	0.0551	0.0122		
	5	21.4	18.70	9.82	901.64	25.2	18.55	10.72	1065.87	1.044	1.486	0.313	0.0590	0.0124		
	77	25.1	15.02	9.35	656.54	24.9	15.03	8.04	485.78	0.542	1.560	0.356	0.0627	0.0143		
ava					1212.16						1294.66	1.07	1.51	0.32	0.062	0.013
SD					583.56						601.06	0.47	0.17	0.03	0.004	0.001
carbo 3mg/kg	119	22.7	16.72	12.67	1342.02	23.0	17.90	11.71	1227.26	0.942	1.091	0.301	0.0474	0.0131		
	36	23.1	16.00	11.64	1083.92	22.7	16.92	11.87	1191.99	0.942	1.091	0.301	0.0481	0.0133		
	60	23.7	16.77	12.77	1367.37	22.4	15.99	13.13	1378.31	1.038	1.199	0.326	0.0535	0.0146		
	35	22.8	16.59	10.13	851.21	22.8	16.00	10.03	804.81	0.885	1.406	0.350	0.0617	0.0154		
	111	19.8	13.78	9.29	594.64	19.6	14.53	9.97	722.15	0.618	0.985	0.258	0.0503	0.0132		
	75	23.5	13.74/7.43	10.57/6.61	929.87	22.9	14.35/8.05	10.69/6.73	1002.23	0.990	1.140	0.287	0.0498	0.0125		
	84	21.4	15.40	10.01	771.54	21.1	15.40	8.56	564.21	0.618	1.168	0.292	0.0554	0.0138		
	80	25.4	10.32	8.16	343.58	25.1	11.07	8.33	384.07	0.245	1.520	0.366	0.0606	0.0146		
ava					910.52						909.38	0.78	1.20	0.31	0.053	0.014
SD					352.42						348.57	0.27	0.18	0.04	0.005	0.001
1044 2.5mg/kg	4	22.6	14.54	9.79	696.79	23.2	14.36	10.39	775.10	0.512	1.469	0.348	0.0633	0.0150		
	32	24.4	10.62	9.06	435.86	24.9	10.15	8.56	371.86	0.245	1.826	0.351	0.0733	0.0141		
	38	23.0	11.55	8.49	416.26	22.6	11.50	7.90	358.86	0.352	1.472	0.339	0.0651	0.0150		
	42	24.3	13.97/8.04	8.54/7.32	724.83	24.9	14.43/9.23	7.80/8.10	741.75	0.569	1.481	0.330	0.0595	0.0133		
	58	23.8	17.95	12.93	1500.48	24.5	18.01	14.47	1885.48	1.004	1.557	0.342	0.0636	0.0140		
	94	22.9	14.24	9.69	668.54	22.3	15.01	10.68	856.04	0.592	1.43	0.321	0.0641	0.0144		
ava					740.46						831.51	0.55	1.54	0.34	0.065	0.014
SD					395.69						558.10	0.26	0.15	0.01	0.005	0.001
1044 5mg/kg	46	21.8	11.94	9.38	525.27	21.1	11.74	9.30	507.70	0.435	1.187	0.307	0.0563	0.0145		
	67	24.0	10.96	6.00	197.28	23.6	11.30	8.65	422.75	0.365	1.240	0.341	0.0525	0.0144		
	83	23.5	12.63	10.37	679.10	23.2	12.87	11.05	785.73	0.499	1.420	0.292	0.0612	0.0126		
	107	26.3	17.23	9.58	790.65	26.0	17.68	10.75	1021.57	1.046	1.715	0.368	0.0660	0.0142		
	116	25.1	14.79	9.22	628.64	23.8	16.06	8.95	643.22	0.568	1.677	0.362	0.0705	0.0152		
	118	23.0	13.99	9.47	627.32	22.6	14.83	8.29	509.59	0.451	1.366	0.309	0.0604	0.0137		
ava					574.71						648.43	0.56	1.43	0.33	0.061	0.014
SD					204.01						222.77	0.25	0.22	0.03	0.006	0.001