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## **SUPPLEMENTAL TABLES (S1-S6)**

Table S1 Percent growth inhibition of HT-29 colon cancer cells by CO04058-3RW/RW red sector extracts (mg·mL-1 cell culture medium) after 24 hours. Data are means of all replicates (%). Three biological replicates were tested except where indicated as n = (). % Growth inhibition data represented in this table were ratio transformed to conduct Tukey's HSD analysis. Means followed by the same letter are not significantly different based on Tukey's HSD, P=0.05. Data are not available for n/a because not tested. Table does not reflect all significant comparisons.

Potato Extract Concentration	Raw							Boil (97 ℃)						
[mg·mL <sup>-1</sup> cell culture medium]	2008 (n)		2009 (n)		2010 (n)		M ean	2008 (n)		2009 (n)		2010 (n)		M ean
										,		•		•
Stage II Immature												_		
3.6	n/a	n/a	0.6 (5)	a b	10	a b	5.3	n/a	n/a	n/a	n/a	2.5	a b	2.5
7.2	n/a	n/a	50.9 (5)	c d e	63.1	е	57.0	n/a	n/a	n/a	n/a	30.3	a b c d e	30.3
14.4	n/a	n/a	62.0 (5)	е	57.9	d e	60.0	n/a	n/a	n/a	n/a	37.4	a b c d e	37.4
Stage III Intermediate				,						1				
3.6	n/a	n/a	n/a	n/a	14	a b	1.4	n/a	n/a	n/a	n/a	0	a b	0
7.2	n/a	n/a	n/a	n/a	29.7	abcde	29.7	n/a	n/a	n/a	n/a	0.5	a b	0.5
14.4	n/a	n/a	n/a	n/a	40.7	abcde	40.7	n/a	n/a	n/a	n/a	1.8	a b	1.8
Stage IV Intermediate														
3.6	n/a	n/a	n/a	n/a	17	a b	1.7	n/a	n/a	n/a	n/a	0	a b	0
7.2	n/a	n/a	n/a	n/a	40.5	abcde	40.5	n/a	n/a	n/a	n/a	0	a b	0
14.4	n/a	n/a	n/a	n/a	47.9	b c d e	47.9	n/a	n/a	n/a	n/a	13.2	a b c	13.2
Stage V Mature					-		-							
3.6	n/a	n/a	0	a b	0	a b	0	n/a	n/a	n/a	n/a	0	a b	0
7.2	n/a	n/a	17.2	abcd	0	a	8.6	n/a	n/a	n/a	n/a	6	a b	6.0
14.4	n/a	n/a	36.6	abcde	10.4	a b	23.5	n/a	n/a	n/a	n/a	47.7	bcde	
				,			•			,		•		•
Stage V (6 month storage)				,						,				
3.6	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
7.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
14.4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table S2 Percent growth inhibition of HT-29 colon cancer cells by CO97226-2R/R extracts ( $mg \cdot mL^{-1}$  cell culture medium) after 24 hours. Data are means of all replicates (%). Three biological replicates were tested except where indicated as n = (). % Growth inhibition data represented in this table were ratio transformed to conduct Tukey's HSD analysis. Means followed by the same letter are not significantly different based on Tukey's HSD, P=0.05. Data are not available for n/a because not tested. Table does not reflect all significant comparisons.

Potato Extract Concentration [mg·mL <sup>-1</sup> cell culture medium]	Raw 2008 (n)	I	2009 (n)	[:	2010 (n)		M ean	Boil (97 °C) 2008 (n)		2009 (n)		2010 (n)		M ean
Stage II immature														
3.6	33.2 (5)	a b c	0 (5)	а	8.6	a b	14	n/a	n/a	n/a	n/a	0	а	0
7.2	58.3 (5)	С	29.4 (5)	a b c	61.1	С	49.6	n/a	n/a	n/a	n/a	0	а	0
14.4	53.4 (5)	С	48.6 (5)	С	45.9	bс	49.3	n/a	n/a	n/a	n/a	27.0	a b c	27.0
Stage III Intermediate														
3.6	n/a	n/a	n/a	n/a	0	а	0	n/a	n/a	n/a	n/a	0	а	0
7.2	n/a	n/a	n/a	n/a	27.4	a b c	27.4	n/a	n/a	n/a	n/a	0	а	0
14.4	n/a	n/a	n/a	n/a	39.0	a b c	39.0	n/a	n/a	n/a	n/a	2.3	а	2.3
Stage IV Intermediate														
3.6	n/a	n/a	n/a	n/a	0	а	0	n/a	n/a	n/a	n/a	0	а	0
7.2	n/a	n/a	n/a	n/a	0	а	0	n/a	n/a	n/a	n/a	0	а	0
14.4	n/a	n/a	n/a	n/a	38.9	a b c	38.9	n/a	n/a	n/a	n/a	0	а	0
Stage V Mature														
3.6	0	а	0	а	0.5	а	0	n/a	n/a	n/a	n/a	0	а	0
7.2	5.6	а	0	а	46.0	bс	17.2	n/a	n/a	n/a	n/a	0	а	0
14.4	50.9	С	45.9	bс	54.8	С	50.5	n/a	n/a	n/a	n/a	0	а	0
Stage V (6 month storage)														
3.6	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
7.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
14.4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table S3 Percent growth inhibition of HT-29 colon cancer cells by CO97216-1P/P extracts (mg·mL<sup>-1</sup> cell culture medium) after 24 hours. Data are means of all replicates (%). Three biological replicates were tested except where indicated as n = (). % Growth inhibition data represented in this table were ratio transformed to conduct Tukey's HSD analysis. Means followed by the same letter are not significantly different based on Tukey's HSD, P=0.05. Data are not available for n/a because not tested. Table does not reflect all significant comparisons.

Potato Extract Concentration	Raw							Boil (97 ℃)						
[mg·mL <sup>-1</sup> cell culture medium]	2008 (n)		2009 (n)		2010 (n)		M ean	2008 (n)		2009 (n)		2010 (n)		Ме
Stage II Immature					1					ī				
3.6	38.4 (5)	a b c	14.9 (5)	bс	0	С	18	n/a	n/a	n/a	n/a	0	С	(
7.2	32.2 (5)	a b c	57.2 (5)	а	47.3	a b	45.6	n/a	n/a	n/a	n/a	0	С	
14.4	310 (5)	abc	42.4 (5)	a b	38.8	a b c	37.4	n/a	n/a	n/a	n/a	0	С	'
Stage III Intermediate														
3.6	n/a	n/a	n/a	n/a	0	с	0	n/a	n/a	n/a	n/a	0	С	(
7.2	n/a	n/a	n/a	n/a	8.9	bс	0	n/a	n/a	n/a	n/a	0	С	(
14.4	n/a	n/a	n/a	n/a	34.5	a b c	0	n/a	n/a	n/a	n/a	0	С	(
Stage IV Intermediate														
3.6	n/a	n/a	n/a	n/a	0	С	0	n/a	n/a	n/a	n/a	0	С	(
7.2	n/a	n/a	n/a	n/a	0	С	0	n/a	n/a	n/a	n/a	0	С	(
14.4	n/a	n/a	n/a	n/a	16.3	bс	16.3	n/a	n/a	n/a	n/a	0	С	(
Stage V Mature														
3.6	0	С	0	С	0	С	0	n/a	n/a	n/a	n/a	0	С	(
7.2	0	с	0	С	17	c	0.6	n/a	n/a	n/a	n/a	0	С	(
14.4	0	С	4.1	С	30.1	a b c	11.4	n/a	n/a	n/a	n/a	13.4	bс	13
Stage V (6 month storage)														
3.6	n/a		n/a		n/a		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n
7.2	0	С	n/a		n/a		0	n/a	n/a	n/a	n/a	n/a	n/a	n
14.4	n/a		n/a		n/a		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n

Table S4 Percent growth inhibition of HT-29 colon cancer cells by CO04058-3RW/RW white sector extracts ( $mg \cdot mL^{-1}$  cell culture medium) after 24 hours. Data are means of all replicates (%). Three biological replicates were tested except where indicated as n = (). % Growth inhibition data represented in this table were ratio transformed to conduct Tukey's HSD analysis. Means followed by the same letter are not significantly different based on Tukey's HSD, P=0.05. Data are not available for n/a because not tested. Table does not reflect all significant comparisons.

Potato Extract Concentration	Raw							Boil (97 ℃)						
[mg·mL <sup>-1</sup> cell culture medium]	2008 (n)		2009 (n)		2010 (n)		M ean	2008 (n)		2009 (n)		2010 (n)		Меа
Stage II Immature					,		,			,		,		
3.6	n/a	n/a	0 (4)	a b	0	a b	0	n/a	n/a	n/a	n/a	0 (2)	a b	0
7.2	n/a	n/a	0 (4)	a b	0	а	0	n/a	n/a	n/a	n/a	0.65 (2)	a b	0.
14.4	n/a	n/a	5.0 (4)	a b	0	a b	2.5	n/a	n/a	n/a	n/a	24.2 (2)	a b c d e	24
Stage III Intermediate														
3.6	n/a	n/a	n/a	n/a	0	a b	0	n/a	n/a	n/a	n/a	0	a b	0
7.2	n/a	n/a	n/a	n/a	0	a b	0	n/a	n/a	n/a	n/a	0	a b	0
14.4	n/a	n/a	n/a	n/a	7.2	a b	7.2	n/a	n/a	n/a	n/a	14.7	a b c d	14.
Stage IV Intermediate														
3.6	n/a	n/a	n/a	n/a	0	a b	0	n/a	n/a	n/a	n/a	0	a b	0
7.2	n/a	n/a	n/a	n/a	0.6	a b	0.6	n/a	n/a	n/a	n/a	0	a b	0
14.4	n/a	n/a	n/a	n/a	21.1	a b c d e	211	n/a	n/a	n/a	n/a	0	a b	0
Stage V Mature														
3.6	n/a	n/a	0 (2)	a b	0	a b	0	n/a	n/a	n/a	n/a	0	a b	0
7.2	n/a	n/a	0 (2)	a b	0	a b	0	n/a	n/a	n/a	n/a	0	a b	0
14.4	n/a	n/a	0 (2)	a b	2.8	a b	1.4	n/a	n/a	n/a	n/a	0	a b	0
Stage V (6 month storage)														
3.6	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
7.2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/
14.4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/s

<u>Table S5</u> Three to five biological replicates of cultivars and selections were harvested during specified years and utilized in different phases of research to examine differences in inhibitory activity due to developmental stage, cooking mode, caspase -3 activities, preparation processes, plant components and thermal degradation properties of heated extracts compared to heated tubers.

	III, IV, V)	III, IV, V)	Cooking Mode: Boiled (Tubers from Developmental Stage II, III, IV, V)		Plant Component: Potato Peel vs. Potato Flesh vs. Whole Tuber (Developmental Stage II Tubers)	Plant Component: Potato Flower	Hested Extracts vs. Hested Tubers (Developmental Stage II Tubers Stored for 6 Months In Dark Conditions at 4 °C)	Preparation Process: Freeze Dried vs. Cryogenically Ground (Developmental Stage II Tubers Stored for 6 Months In Dark Conditions at 4 °C)
CO95172-3RU	2008, 2009, 2010	2008, 2009, 2010		l				
CO97216-1P/P	2008, 2009, 2010	2008, 2009, 2010	2010	2010	2011	2011	2010	2010
CO97216-3P/PW	2008, 2009, 2010	2008, 2009, 2010	2010					
CO97226-2R/R	2008, 2009, 2010	2008, 2009, 2010	2010	2010	2011		2010	2010
CO97227-2P/PW	2008, 2009, 2010	2008, 2009, 2010						
CO04056-7P/PW	2009, 2010	2009, 2010	2010					
CO04058-3RW/RW	2009, 2010	2009, 2010	2010	2010	2011	2011		
CO04061-1R/RW	2009, 2010	2009, 2010	2010					
Colorado Rose	2008, 2009, 2010	2008, 2009, 2010	2010					
Mountain Rose	2008, 2009, 2010	2008, 2009, 2010			2011			
Purple Majesty	2008, 2009, 2010	2008, 2009, 2010			2011			
Rio Grande Russet	2008, 2009, 2010	2008, 2009, 2010	2010					
Russet Nugget	2008, 2009, 2010	2008, 2009, 2010			2011			

Table S6 Planting dates, harvest dates, days to maturity and growing degree days by year (2008-2011) defining developmental stages utilized in this research.

	_																
		2008				2009				2010			2011				
	Planting		Days to	Growing	Planting		Davs to	Growing	Planting		Davs to	Growing	Planting		Davs to	Growing	
Developmental Stage	Date	Harvest Date				Harvest Date		Days		Harvest Date				Harvest Date			
Stage I (Immature)	15th of May	30th of July	48	942.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a					
Stage II (Immature)	15th of May	9th of August	38	1126.5	1st of June	8th of August	33	852.5	18th of May	25th of July	50	945.5	25th of May	10th of August	29	1289.5	
Stage III (Intermediate)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	18th of May	31st of July	44	1053.0	n/a	n/a	n/a	n/a	
Stage IV (Intermediate)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	18th of May	7th of August	37	1163.5	n/a	n/a	n/a	n/a	
Stage V (Mature)	15th of May	17th of September	0	1538.5	1st of June	11th of September	0	1284.0	18th of May	14th of September	0	16 18.5	25th of May	8th of September	0	1794.0	
Stage V - 6 m (Mature - 6 Months Storage)	15th of May	17th of February	+6 months	1538.5	1st of June	1th of September	+6 months	1284 0	18th of May	14th of February	+6 months	1618.5	n/a	n/a	n/a	n/a	