

Supplementary Material

Article

Effect of harvest age on total phenolic, total anthocyanin content, bioactive antioxidant capacity and antiproliferation of black and white glutinous rice sprouts

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	BGR											
BGR	Test		TPC	TAC	DPPH	FRAP	Cyto-24h	Cyto-48h	DCFH-DA	GSH	Apoptosis	Caspase
			0.698* (p<0.05)	0.747* (p<0.05)	-0.690** (p<0.005)	0.314 (p=0.9254)	0.949** (p<0.0001)	0.562 (p=0.057)	-0.943** (p<0.00001)	0.922** (p<0.001)	0.824* (p<0.05)	0.782** (p<0.005)
	TPC	0.698* (p<0.05)	1.00	0.312 (p=0.413)	-0.549 (p=0.064)	0.891** (p<0.001)	0.465 (p=0.127)	0.769* (p<0.05)	-0.762** (p<0.005)	0.868** (p<0.005)	0.883** (p<0.001)	0.976** (p<0.000001)
	TAC	0.747* (p<0.05)	0.312 (p=0.413)	1.00	-0.340 (p=0.371)	-0.089 (p=0.819)	0.810* (p<0.05)	0.184 (p=0.636)	-0.704* (p<0.05)	0.571 (p=0.109)	0.502 (p=0.168)	0.421 (p=0.259)
	DPPH	-0.690** (p<0.005)	-0.549 (p=0.064)	-0.340 (p=0.371)	1.00	-0.419 (p=0.120)	-0.593* (p<0.05)	-0.311 (p=0.260)	0.587* (p<0.05)	-0.663 (p=0.052)	-0.761** (p<0.005)	-0.608* (p<0.05)
	FRAP	0.314 (p=0.9254)	0.891** (p<0.001)	-0.089 (p=0.819)	-0.419 (p=0.120)	1.00	0.027 (p=0.924)	0.663* (p<0.05)	-0.446 (p=0.146)	0.590 (p=0.095)	0.686* (p<0.05)	0.834** (p<0.001)
	Cyto-24h	0.949** (p<0.0001)	0.465 (p=0.127)	0.810* (p<0.05)	-0.593* (p<0.05)	0.027 (p=0.924)	1.00	0.400 (p=0.140)	-0.840** (p<0.005)	0.778* (p<0.05)	0.656* (p<0.05)	0.545* (p<0.05)
	Cyto-48h	0.562 (p=0.057)	0.769* (p<0.05)	0.184 (p=0.636)	-0.311 (p=0.260)	0.663* (p<0.05)	0.400 (p=0.14)	1.00	-0.649* (p<0.05)	0.579 (p=0.102)	0.589* (p<0.05)	0.545* (p<0.05)
	DCFH-DA	-0.943** (p<0.00001)	-0.762** (p<0.005)	-0.704* (p<0.05)	0.587* (p<0.05)	-0.446 (p=0.146)	-0.840** (p<0.005)	-0.649* (p<0.05)	1.00	-0.891* (p<0.05)	-0.786** (p<0.005)	-0.849** (p<0.001)
	GSH	0.922** (p<0.001)	0.868* (p<0.05)	0.571 (p=0.109)	-0.663 (p=0.052)	0.590 (p=0.095)	0.778* (p<0.05)	0.579 (p=0.102)	-0.891* (p<0.05)	1.00	0.914* (p<0.05)	-0.928** (p<0.001)
	Apoptosis	0.824* (p<0.05)	0.883** (p<0.001)	0.502 (p=0.168)	-0.761** (p<0.005)	0.686* (p<0.05)	0.656* (p<0.05)	0.589* (p<0.05)	-0.786** (p<0.005)	0.914* (p<0.05)	1.00	0.897** (p<0.0001)
	Caspase	0.782** (p<0.005)	0.976** (p<0.000001)	0.421 (p=0.259)	-0.608* (p<0.05)	0.834** (p<0.001)	0.545* (p<0.05)	0.545* (p<0.05)	-0.849** (p<0.001)	-0.928** (p<0.001)	0.897** (p<0.0001)	1.00

Abbreviation:

BGR = black glutinous rice, TPC = total phenolic content, TAC = total anthocyanin content, DPPH = DPPH radical scavenging activities, FRAP = ferric reducing antioxidant power, Cyto-24h = cytotoxicity at 24 h in Jurkat cells, Cyto-48h = cytotoxicity at 48 h in Jurkat cells, DCFH-DA = intracellular hydrogen peroxide level in Jurkat cells, GSH = endogenous glutathione level in Jurkat cells, Apoptosis = apoptosis induction effect of BGR in Jurkat cells, Caspase: Caspase 3/7 activity of BGR in Jurkat cells.

Figure S1. Correlation coefficient (r) of BGR group at different harvest ages with antioxidant capacity (TPC, TAC, DPPH, FRAP, DCHF-DA and GSH), and anticancer effect (cytotoxicity, apoptosis, and caspase activity). If the r value is close to +1 or -1, it will indicate a strong positively relationship or inverse relationship, respectively. If r is near to 0, it will indicate weak or no relationship. *Correlation is significant at $p < 0.05$.

	RD6					
	Test		TPC	TAC	DPPH	FRAP
RD6		1.00	0.447 (<i>p</i> =0.228)	0.073 (<i>p</i> =0.851)	0.606* (<i>p</i> <0.05)	0.348 (<i>p</i> =0.204)
	TPC	0.447 (<i>p</i> =0.228)	1.00	0.440 (<i>p</i> =0.236)	-0.479 (<i>p</i> =0.136)	0.986* (<i>p</i> <0.05)
	TAC	0.073 (<i>p</i> =0.851)	0.440 (<i>p</i> =0.236)	1.00	-0.612 (<i>p</i> =0.106)	0.539 (<i>p</i> =0.168)
	DPPH	0.606* (<i>p</i> <0.05)	-0.479 (<i>p</i> =0.136)	-0.612 (<i>p</i> =0.106)	1.00	-0.229 (<i>p</i> =0.4111)
	FRAP	0.348 (<i>p</i> =0.204)	0.986* (<i>p</i> <0.05)	0.539 (<i>p</i> =0.168)	-0.229 (<i>p</i> =0.4111)	1.00

Abbreviation:

TPC = total phenolic content, TAC = total anthocyanin content, DPPH = DPPH radical scavenging activities, FRAP = ferric reducing antioxidant power

Figure S2. Correlation coefficient (*r*) of antioxidant capacity (TPC, TAC, DPPH, and FRAP) of RD6 at different harvest ages. If the value is close to +1 or -1, it will indicate a strong positively relationship or inverse relationship, respectively. If *r* is near to 0, it will indicate weak or no relationship. *Correlation is significant at *p* < 0.05.

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(A)

24 h	BGR			
BGR	Cell		Jurkat	HCT116
		1.00	0.952** ($p<0.0001$)	-0.951** ($p<0.0001$)
	Jurkat	0.952** ($p<0.0001$)	1.00	-0.817** ($p<0.001$)
	HCT116	-0.951** ($p<0.0001$)	-0.817** ($p<0.001$)	1.00

(B)

48 h	BGR			
BGR	Cell		Jurkat	HCT116
		1.00	0.589* ($p<0.05$)	-0.609* ($p<0.05$)
	Jurkat	0.589* ($p<0.05$)	1.00	-0.407* ($p=0.132$)
	HCT116	-0.609* ($p<0.05$)	-0.407* ($p=0.132$)	1.00

Figure S3. Correlation coefficient of cytotoxicity between Jurkat and HCT116 after BGR treatment (A) at 24 h and (B) at 48 h. If the value is close to +1 or -1, it will indicate a strong positively relationship or inverse relationship, respectively. If r is near to 0, it will indicate weak or no relationship. *Correlation is significant at $p < 0.05$.

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