Supplementary table 1Alteration of LDH during ischemia and I/R and modulation by various test materials (Se, GGN and SGG)

LDH LEVEL	Average values	%	Difference from control	Difference from I/R*
Control	14.758	100		
ischemia	141.047	955.732	**855.732**	
IR	114.758	777.599	**677.599**	
60 µg GG	21.906	148.435	**48.435**	**629.164**
300 µg GG	19.328	130.966	**30.966**	**646.633**
5 Se	18.664	126.467	**26.467**	**651.132**
25 Se	20.657	139.971	**39.971**	**637.628**
5 SGG	11.594	78.561	**21.439**	**699.038**
25 SGG	14.094	95.501	**4.499**	**682.098**

Descriptives

*The results of test materials were compared with I/R groups for evaluation of performance each materials among the groups.

Supplementary table 2 Alteration of antioxidant enzymes (SOD, Catalase, GPx) during ischemia and I/R and modulation by various test materials (Se, GGN and SGG)

SOD ACTIVITY	Average values	%	Difference from control	Difference from I/R*
Control	0.908288	100		
ischemia	0.441761	48.637	**51.363**	
IR	0.523622	57.649	**42.351**	
60 µg GG	0.678162	74.664	**25.336**	**17.015**
300 µg GG	0.624571	68.763	**31.237**	**11.114**
5 Se	0.760263	83.703	**16.297**	**26.054**
25 Se	0.866973	95.451	**4.549**	**37.802**
5 SGG	0.873497	96.17	**3.83**	**38.521**
25 SGG	0.940347	103.53	**3.53**	**45.881**
CATALASE				
Control	0.116475	100		
ischemia	0.033818	29.034	**70.966**	
IR	0.047448	40.737	**59.263**	
60 µg GG	0.091762	78.783	**21.217**	**38.046**
300 µg GG	0.09283	79.7	**20.3**	**38.963**
5 Se	0.093026	79.868	**20.132**	**39.131**
25 Se	0.096106	82.512	**17.488**	**41.775**
5 SGG	0.103885	89.191	**10.809**	**48.454**
25 SGG	0.106969	91.838	**8.162**	**51.101**
GPx Activity				
Control	0.340519	100		
ischemia	0.228152	67.001	**32.999**	
IR	0.248813	73.069	**26.931**	
60 µg GG	0.329135	96.657	**3.343**	**23.588**
300 µg GG	0.322876	94.819	**5.181**	**21.75**
5 Se	0.312499	91.771	**8.229**	**18.702**
25 Se	0.335618	98.561	**1.439**	**25.492**
5 SGG	0.333431	97.919	**2.081**	**24.85**
25 SGG	0.339006	99.556	**0.444**	**26.487**

*The results of test materials were compared with I/R groups for evaluation of performance each materials among the groups

Supplementary table 3 Alteration of antioxidant enzymes (glutathione, Trx, Total antioxidant level) during ischemia and I/R and modulation by various test materials (Se, GGN and SGG)

Glutathione Activity	Average values	%	Difference from control	Difference from I/R*
Control	0.2673908	100		
ischemia	0.1427424	53.383	**46.617**	
IR	0.1607651	60.124	**39.876**	
60 µg GG	0.1870005	69.935	**30.065**	**9.811**
300 µg GG	0.1960511	73.32	**26.68**	**13.196**
5 Se	0.1810859	67.723	**32.277**	**7.599**
25 Se	0.1923708	71.944	**28.056**	**11.82**
5 SGG	0.2051551	76.725	**23.275**	**16.601**
25 SGG	0.1991987	74.497	**25.503**	**14.373**
Trx Activity				
Control	0.004267	100		
ischemia	0.001933	45.312	**54.688**	
IR	0.002267	53.125	**46.875**	
60 µg GG	0.002533	59.375	**40.625**	**6.25**
300 µg GG	0.003467	81.25	**18.75**	**28.125**
5 Se	0.002967	69.531	**30.469**	**16.406**
25 Se	0.0039	91.406	**8.594**	**38.281**
5 SGG	0.003867	90.625	**9.375**	**37.5**
25 SGG	0.004667	109.375	**9.375**	**56.25**
Total antioxidant level				
Control	0.05	100		
ischemia	0.02	40	**60**	
IR	0.025333	50.667	**49.333**	
60 µg GG	0.044	87.999	**12.001**	**37.332**
300 µg GG	0.05	100	**0**	**49.333**
5 Se	0.039333	78.666	**21.334**	**27.999**
25 Se	0.053667	107.333	**7.333**	**56.666**
5 SGG	0.047333	94.667	**5.333**	**44**
25 SGG	0.054667	109.333	**9.333**	**58.666**

*The results of test materials were compared with I/R groups for evaluation of performance each materials among the groups

Supplementary table 4 Alteration of Protein carbonyl content, lipid peroxidation and xanthine oxidase activity during ischemia and I/R and modulation by various test materials (Se, GGN and SGG)

Protein carbonyl assay	Average values	%	Difference from control	Difference from I/R*
Control	2.171615	100		
ischemia	9.300756	428.287	**328.287**	
IR	7.182285	330.735	**230.735**	
60 µg GG	3.142306	144.699	**44.699**	**186.036**
300 µg GG	3.637312	167.493	**67.493**	**163.242**
5 Se	2.736424	126.009	**26.009**	**204.726**
25 Se	4.314934	198.697	**98.697**	**132.038**
5 SGG	2.441221	112.415	**12.415**	**218.32**
25 SGG	1.851043	85.238	**14.762**	**245.497**
Lipid peroxidation assay				
Control	0.714	100		
ischemia	1.567778	219.577	**119.577**	
IR	1.297768	181.76	**81.76**	
60 µg GG	0.860255	120.484	**20.484**	**61.276**
300 µg GG	0.881329	123.435	**23.435**	**58.325**
5 Se	0.797479	111.692	**11.692**	**70.068**
25 Se	0.744536	104.277	**4.277**	**77.483**
5 SGG	0.652204	91.345	**8.655**	**90.415**
25 SGG	0.558384	78.205	**21.795**	**103.555**
Xanthine oxidase assay				
Control	60002	100		
ischemia	89296	148.822	**48.822**	
IR	79576	132.622	**32.622**	
60 µg GG	64816	108.023	**8.023**	**24.599**
300 µg GG	66376	110.623	**10.623**	**21.999**
5 Se	65189	108.645	**8.645**	**23.977**
25 Se	55482	92.467	**7.533**	**40.155**
5 SGG	57442	95.733	**4.267**	**36.889**
25 SGG	53482	89.134	**10.866**	**43.488**

*The results of test materials were compared with I/R groups for evaluation of performance each materials among the groups

Supplementary table 5 Alteration of calcium ATPase & calcium content during ischemia and I/R and modulation by various test materials (Se, GGN and SGG)

Calcium ATPase	Average values	%	Difference from control	Difference from I/R*
Control	0.187649	100		
ischemia	0.0455	24.247	**75.753**	
IR	0.102857	54.814	**45.186**	
60 µg GG	0.154292	82.224	**17.776**	**27.41**
300 µg GG	0.189833	101.164	**1.164**	**46.35**
5 Se	0.179333	95.569	**4.431**	**40.755**
25 Se	0.198917	106.005	**6.005**	**51.191**
5 SGG	0.199286	106.201	**6.201**	**51.387**
25 SGG	0.213958	114.021	**14.021**	**59.207**
Calcium assay				
Control	1.88086	100		
ischemia	3.343561	177.768	**77.768**	
IR	3.060211	162.703	**62.703**	
60 µg GG	2.422825	128.815	**28.815**	**33.888**
300 µg GG	2.185947	116.221	**16.221**	**46.482**
5 Se	2.523193	134.151	**34.151**	**28.552**
25 Se	2.213175	117.668	**16.221**	**45.035**
5 SGG	2.259702	120.142	**20.142**	**42.561**
25 SGG	2.107228	112.035	**12.035**	**50.668**
Calcium determination (Fura 2 AM)				
Control	63.4	100		
ischemia	153	241.325	**141.325**	
IR	143.6667	226.604	**126.604**	
60 µg GG	92.33333	145.636	**45.636**	**80.968**
300 µg GG	87	137.223	**37.223**	**89.381**
5 Se	94	148.265	**48.265**	**78.339**
25 Se	87.66667	138.275	**38.275**	**88.329**
5 SGG	82.66667	130.389	**30.389**	**96.215**
25 SGG	77.33333	121.977	**21.977**	**104.627**

*The results of test materials were compared with I/R groups for evaluation of performance each materials among the groups

Supplementary table 6 Alteration of Caspase 3 activity during ischemia and I/R and modulation by various test materials (Se, GGN and SGG)

Caspase 3 assay	Average values	%	Difference from control	Difference from I/R*
Control	4379845	100		
Ischemia	13515845	308.592	**208.592**	
I/R	12547845	286.491	**186.491**	
60 µg GGN	4129845	94.292	**5.708**	**192.199**
300 µg GGN	5826245	133.024	**33.024**	**153.467**
5 nM Se	3768845	86.05	**13.95**	**200.441**
25 nM Se	4507845	102.922	**2.922**	**183.569**
5 nM SGG	3219445	73.506	**26.494**	**259.997**
25 nM SGG	2433845	55.569	**44.431**	**230.922**

*The results of test materials were compared with I/R groups for evaluation of performance each materials among the groups

Supplementary table 7 Alteration of ROS generation during ischemia and I/R and modulation by various test materials (Se, GGN and SGG)

ROS Scavenging assay	Average values	%	Difference from control	Difference from I/R*
Control	10386.33	100		
Ischemia	14969.67	144.129	**44.129**	
I/R	12647	121.766	**21.766**	
60 µg GGN	12098	116.48	**16.48**	**5.286**
300 µg GGN	10289	99.063	**0.937**	**22.703**
5 nM Se	12159	117.067	**17.067**	**4.699**
25 nM Se	10084.33	97.092	**2.908**	**24.674**
5 nM SGG	9474.667	91.222	**8.778**	**30.544**
25 nM SGG	5750.667	55.368	**44.632**	**66.398**

*The results of test materials were compared with I/R groups for evaluation of performance each materials among the groups