

Supplementary material

Table S1: Crosstabulation of the histological scores by group according to the tissue and parameter.

Tissue	Parameter	Score	Group				P value*	Eta
			Control		Goji			
			Count	Column N %	Count	Column N %		
Epididymis	Phlogosis	0	9	100.0%	8	100.0%	-	-
	Degeneration	0	8	88.9%	6	75.0%	0.718	0.241
		1	1	11.1%	1	12.5%		
		2	0	0.0%	1	12.5%		
	Functional activity	0	3	33.3%	0	0.0%	0.194	0.543 (eta²=0.737)
		1	1	11.1%	0	0.0%		
		2	3	33.3%	3	37.5%		
		3	2	22.2%	5	62.5%		
	Hyperplasia	0	7	77.8%	5	62.5%	0.462	0.291
		1	2	22.2%	1	12.5%		
		2	0	0.0%	2	25.0%		
	Necrosis	0	9	100.0%	8	100.0%	-	-
Urethral bulb glands	Phlogosis	0	8	88.9%	7	87.5%	1.000	0.095
		1	0	0.0%	1	12.5%		
		2	1	11.1%	0	0.0%		
	Degeneration	0	6	66.7%	7	87.5%	1.000	0.280
		1	2	22.2%	1	12.5%		
		2	1	11.1%	0	0.0%		
	Functional activity	0	1	11.1%	2	25.0%	0.741	0.023
		1	5	55.6%	2	25.0%		
		2	2	22.2%	3	37.5%		
		3	1	11.1%	1	12.5%		
	Hyperplasia	0	3	33.3%	4	50.0%	0.741	0.000
		1	3	33.3%	1	12.5%		
		2	3	33.3%	2	25.0%		
		3	0	0.0%	1	12.5%		
	Necrosis	0	9	100.0%	8	100.0%	-	-

Prostate	Phlogosis	0	9	100.0%	8	100.0%	-	-
	Degeneration	0	8	88.9%	6	75.0%	0.576	0.182
		1	1	11.1%	2	25.0%		
	Functional activity	0	2	22.2%	0	0.0%	0.793	0.238
		1	4	44.4%	4	50.0%		
		2	2	22.2%	3	37.5%		
		3	1	11.1%	1	12.5%		
	Hyperplasia	0	3	33.3%	2	25.0%	1.000	0.181
		1	3	33.3%	2	25.0%		
		2	2	22.2%	2	25.0%		
		3	1	11.1%	2	25.0%		
	Necrosis	0	9	100.0%	8	100.0%	-	-
Testis	Phlogosis	0	9	100.0%	8	100.0%	-	-
	Degeneration	0	7	77.8%	7	87.5%	1.000	0.191
		1	1	11.1%	1	12.5%		
		2	1	11.1%	0	0.0%		
	Functional activity	0	2 _a	22.2%	0 _a	0.0%	0.046	0.611 (eta ² =0.782)
		1	4 _a	44.4%	0 _b	0.0%		
		2	2 _a	22.2%	5 _a	62.5%		
		3	1 _a	11.1%	3 _a	37.5%		
	Hyperplasia	0	7	77.8%	3	37.5%	0.302	0.457
		1	1	11.1%	1	12.5%		
		2	1	11.1%	3	37.5%		
		3	0	0.0%	1	12.5%		
	Necrosis	0	9	100.0%	8	100.0%	-	-
Seminal vesicles	Phlogosis	0	9	100.0%	7	87.5%	0.471	0.265
		2	0	0.0%	1	12.5%		
	Degeneration	0	8	88.9%	7	87.5%	1.000	0.022
		1	1	11.1%	1	12.5%		
	Functional activity	0	4	44.4%	2	25.0%	0.445	0.116
		1	2	22.2%	4	50.0%		
		2	2	22.2%	0	0.0%		
		3	1	11.1%	2	25.0%		
	Hyperplasia	0	5	55.6%	3	37.5%	0.332	0.388
		1	4	44.4%	2	25.0%		
		2	0	0.0%	2	25.0%		
		3	0	0.0%	1	12.5%		
	Necrosis	0	9	100.0%	8	100.0%	-	-

Goji berry dietary supplementation and semen traits

* p value from Fisher’s exact

- No computed as variable is constant

Values followed by the same subscript letter in each row do not differ ($p \leq 0.05$; z-test).

Eta values indicating medium or large association are in bold.

Table S2: Spearman's rho coefficient for the correlations between histological scores evaluated in urethral bulb glands, prostate and seminal vesicles, and seminal parameters, total antioxidant capacity, antioxidant enzymes, and interleukin-1 β .

Tissue	Parameter	Volume	Concentration	Motility	Live cells	Abnormal cells	Reaction time	TAC	CAT	SOD	GPx	IL1beta
Urethral bulb glands	Degeneration	0.583*	-0.119	-0.132	0.079	0	0.212	0.364	0.404	0.132	0.02	-0.304
	Functional activity	0.384	0.47	0.589*	0.599*	-0.385	0.068	0.09	-0.096	-0.563*	-0.013	-0.132
	Hyperplasia	0.296	0.058	-0.08	0.057	0.032	0.236	-0.049	0.07	-0.056	-0.518*	-0.570*
Prostate	Degeneration	-0.095	0.315	0.079	0.300	-0.315	-0.189	0.378	0.567*	0.157	0.441	-0.031
	Functional activity	0.053	0.301	0.385	0.464	-0.504*	-0.109	0.477	0.570*	-0.100	0.531*	0.19
	Hyperplasia	0.127	0.285	0.152	0.267	-0.227	0.242	0.372	0.571*	0.161	0.013	-0.061
Seminal vesicles	Degeneration	-0.112	0.112	0.056	0.037	-0.373	0.335	0.298	0.335	0.037	0.149	-0.075
	Functional activity	0.02	0.199	0.261	0.229	-0.194	-0.086	0.311	0.376	0.134	0.175	0.023
	Hyperplasia	-0.159	0.354	0.270	0.236	-0.529*	-0.056	0.340	0.431	0.038	0.104	-0.230

TAC: Total Antioxidant Capacity; CAT: Catalase; GPx: Glutathione Peroxidase; SOD: Superoxidase Dismutase; IL-1 β : Interleukin-1 β . Values in bold denote statistical significance of the correlation (2-tailed): * at the 0.05 level.

Figure S1: Evaluation of the color of the semen samples. The values are the percentages of the samples for each time point.

