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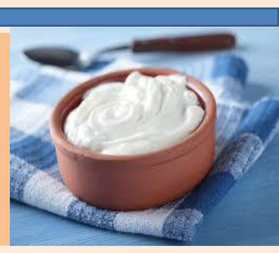
Effects of flavonoids dietary supplementation on yoghurt antioxidant capacity



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Introduction

Hesperidin and naringin are natural occurring **flavonoids**, well known for their **antioxidant** and **anti-inflammatory** properties. They are contained in **citrus pulp** that represents a cheap, but rich source of energy, fiber and calcium for sheep diets around the Mediterranean

Objective

The aim of the present study was to investigate the effects of dietary supplementation with **naringin** and **hesperidin** on quality characteristics (**colour**, **pH**, **syneresis** and **texture)** and **oxidative stability** (MDA assay) of **yoghurt** manufactured by ewe milk

Materials & Methods

36 ewes were assigned into 4 experimental groups:

1. **(C)**, without dietary supplementation
2. **(H)**, supplemented with hesperidin at 6 g/kg
3. **(N)**, supplemented with naringin at 6 g/kg
4. **(E)**, supplemented with α-tocopheryl acetate at 0.2 g/kg

Yoghurt was manufactured by milk collected from ewes after **0**, **7** & **21** days of dietary supplementation. Apart from the determination of colour, pH, firmness and syneresis, measurements of **antioxidant capacity** (MDA assay) were performed in yoghurt samples after refrigerated storage at 4°C for 10 and 20 days

Conclusions

Hesperidin and naringin dietary supplementation <u>do</u> not seem to improve the quality characteristics and the antioxidant capacity of sheep milk yoghurt

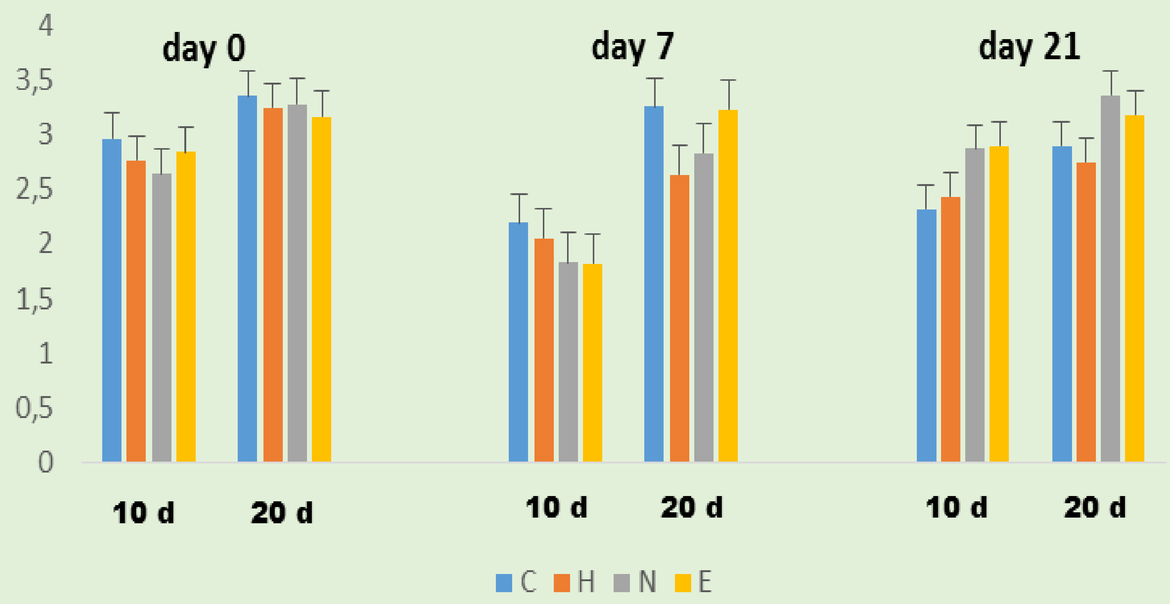
The process of yoghurt manufacturing possibly influences the action of bioflavonoids (and their metabolites) and <u>no</u> significant effect is observed (in contrast with ewe milk)

Results

Effect of hesperidin and naringin on yoghurt characteristics after 0, 7 and 21 days of dietary supplementation

Day	Parameters		Treatment				S.E.M.
			C	H	N	E	
0	Colour	L	95.07	94.97	95.16	94.48	0.25
		a*	-2.76	-2.89	-2.99	-3.00	0.07
		b*	11.46	11.33	11.84	11.58	0.35
	pH		4.24	4.23	4.25	4.49	0.14
	Firmness (N)		0.87	0.90	0.84	0.68	0.08
	Syneresis (%)		1.96	2.73	1.32	3.50	0.65
7	Colour	L	94.93	94.91	95.22	95.05	0.32
		a*	-2.81	-2.73	-2.84	-2.71	0.07
		b*	10.75	10.76	10.52	10.73	0.45
	pH		4.32	4.51	4.44	4.38	0.13
	Firmness (N)		0.79	0.81	0.72	0.88	0.11
	Syneresis (%)		2.12	2.47	1.58	3.44	0.66
21	Colour	L	94.73	94.53	95.02	94.88	0.37
		a*	-2.70	-2.84	-2.77	-2.66	0.07
		b*	10.32	11.00	10.84	10.80	0.57
	pH		4.30	4.19	4.18	3.94	0.25
	Firmness (N)		0.81	0.75	0.87	0.92	0.11
	Syneresis (%)		2.22	3.43	2.99	3.41	0.93

Effect of naringin and hesperidin on MDA concentration (ng/g) in yoghurt manufactured with sheep milk after 0, 7 and 21 days of dietary supplementation and 10 & 20 days of storage at 4°C



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