

Αξιοποίηση Φυσικών Αντιοξειδωτικών στην Εκτροφή των Αγροτικών Ζώων για Παραγωγή Προϊόντων Ποιότητας

Γεωπονικό Πανεπιστήμιο Αθηνών

Εργαστήριο Ζωοτεχνίας

MIS 380231

Δράση 5^η : Ποιότητα γάλακτος και γαλακτοκομικών προϊόντων

Παραδοτέα: D5_PUBL_3

EFFECTS OF FLAVONOIDS DIETARY SUPPLEMENTATION ON STRAINED YOGHURT ANTIOXIDANT CAPACITY

Παρουσίαση (poster) στο «66th Annual Meeting of the European Federation of Animal Science (EAAP)», που διοργανώθηκε στη Βαρσοβία, Πολωνία από 31 Αυγούστου έως 4 Σεπτεμβρίου 2015.



Effects of flavonoids dietary supplementation on strained yoghurt antioxidant capacity
P. Simitzis¹, M. Charismiadou¹, M. Goliomytis¹, T. Masouras², K. Moschou¹, C. Ikonomidou¹, E. Papadedes¹, S. Lepesioti¹, S. Deligeorgis¹

¹Department of Animal Breeding and Husbandry, Faculty of Animal Science and Aquaculture, Agricultural University of Athens, 75 Iera Odos, 118 55 Athens, Greece

²Laboratory of Dairy Research, Department of Food Science and Technology, Agricultural University of Athens, 75 Iera Odos, 118 55 Athens, Greece

Abstract

An experiment was conducted to examine the effects of dietary hesperidin or naringin supplementation on strained yoghurt antioxidant capacity. Hesperidin and naringin are bioflavonoids that are abundant in inexpensive by-products of citrus cultivation such as citrus pulp. Thirty-six multiparous ewes (in their second lactation period) were assigned into 4 experimental groups of 9 ewes each. One of the groups served as control (C) and was given a commercial basal diet, without bioflavonoid supplementation, whereas the other three groups were given the same diet further supplemented with hesperidin at 6 g/kg (H) or naringin at 6 g/kg (N) or α -tocopheryl acetate at 0.2 g/kg (E) of concentrated feed. Strained yoghurt was manufactured by milk collected from ewes after 0, 7 and 21 days of dietary supplementation. Apart from the immediate determination of colour parameters, pH values and rheological characteristics, measurements of antioxidant capacity were performed in yoghurt samples after refrigerated storage at 4°C for 10 and 20 days. In general, oxidative stability of yoghurt, expressed as ng MDA/ml milk, was not influenced by the bioflavonoids' dietary supplementation. According to the findings of the present study, flavonoids do not seem to improve the quality characteristics of strained yoghurt.

* This research project was implemented within the framework of the Project "Thalis – The effects of antioxidant's dietary supplementation on animal product quality", MIS 380231, Funding Body: Hellenic State and European Union.



66th EAAP Annual Meeting - Warsaw, Poland, 31st August - 4th September 2015

Effects of flavonoids dietary supplementation on yoghurt antioxidant capacity

P. Simitzis¹, M. Goliomytis¹, M. Charismiadou¹, T. Massouras², K. Moschou², C. Ekonomou¹, V. Papadedes¹, S. Lepesioti¹ and S. Deligeorgis¹

¹Department of Animal Science and Aquaculture, ²Department of Food Science and Technology, Agricultural University of Athens, 75 Iera Odos, 118 55 Athens, Greece

Introduction

Naringin and hesperidin 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

Aim

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 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 direct determination of colour, pH, syneresis and texture, 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 do not seem to improve the quality characteristics and the antioxidant capacity of sheep milk yoghurt



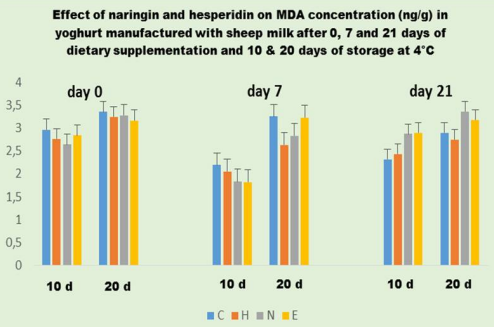
The process of yoghurt manufacturing possibly influence the action of bioflavonoids (and their metabolites) and no significant effect is observed (in contrast with ewe milk)


Results

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


Day	Quality Characteristics	Treatment				S.E.M.
		C	H	N	E	
0	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	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	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






European Union
European Regional Development Fund



OPERATIONAL PROGRAMME
ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΠΡΟΓΡΑΜΜΑ
ΕΚΠΑΙΔΕΥΣΗ ΚΑΙ ΔΙΑ ΒΙΟΥ ΜΑΘΗΣΗ
ένδυνάμιση στην κοινωνία της γνώσης
ΥΠΟΥΡΓΕΙΟ ΠΑΙΔΕΙΑΣ & ΘΡΗΣΚΕΥΜΑΤΩΝ, ΠΟΛΙΤΙΣΜΟΥ & ΑΘΛΗΤΙΣΜΟΥ
ΕΙΔΙΚΗ ΥΠΗΡΕΣΙΑ ΔΙΑΧΕΙΡΙΣΗΣ



NSRF
2007-2013
ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΠΡΟΓΡΑΜΜΑ
ΕΥΡΩΠΑΪΚΟ ΚΟΙΝΩΝΙΚΟ ΤΑΜΕΙΟ

This research project was implemented within the framework of the Project "Thalis - The effects of antioxidant's dietary supplementation on animal product quality", MIS 380231, Funding Body: Hellenic State and European Union



Ευρωπαϊκή Ένωση
Ευρωπαϊκό Κοινωνικό Ταμείο



ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΠΡΟΓΡΑΜΜΑ
ΕΚΠΑΙΔΕΥΣΗ ΚΑΙ ΔΙΑ ΒΙΟΥ ΜΑΘΗΣΗ
ένδυνάμιση στην κοινωνία της γνώσης
ΥΠΟΥΡΓΕΙΟ ΠΑΙΔΕΙΑΣ & ΘΡΗΣΚΕΥΜΑΤΩΝ, ΠΟΛΙΤΙΣΜΟΥ & ΑΘΛΗΤΙΣΜΟΥ
ΕΙΔΙΚΗ ΥΠΗΡΕΣΙΑ ΔΙΑΧΕΙΡΙΣΗΣ
Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης



ΕΣΠΑ
2007-2013
Επένδυση για την ανάπτυξη
ΕΥΡΩΠΑΪΚΟ ΚΟΙΝΩΝΙΚΟ ΤΑΜΕΙΟ

Η Επιτροπή Πιστοποίησης Παραδοτέων

Π. Σιμιτζής
Λέκτορας

Μ. Χαρισμάδου
Λέκτορας

Π. Ζουμπουλάκης
Ερευνητής

