# Book of Abstracts of the 73rd Annual Meeting of the European Federation of Animal Science



**Book of abstracts No. 28 (2022)**
**Porto, Portugal**
**5 – 9 September, 2022**

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Wageningen Academic Publishers
P.O. Box 220
6700 AE Wageningen
The Netherlands
www.WageningenAcademic.com
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**EAN: 9789086863853**
**e-EAN: 9789086869374**
**ISBN: 978-90-8686-385-3**
**e-ISBN: 978-90-8686-937-4**
**DOI: 10.3920/978-90-8686-937-4**

**ISSN 1382-6077**

**First published, 2022**



*Wageningen Academic Publishers*

**Effect of pork fat replacement by vegetable oleogels in quality of goat meat burgers**

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Healthy lifestyle has become a goal for most of the consumers nowadays. A well-known strategy used to improve nutritional characteristics of meat products is animal fat replacement, as pork back fat, which has a considerable amount of saturated fatty acids (SFA) that are considered a risk factor to cardiovascular diseases. Goat meat is an alternative to replace beef and pork, with a similar protein content and lower fat content, and also as an opportunity to commercialize goat meat from culled animals. The present study aimed to develop a goat meat burger, replacing the pork fat by olive oil or sunflower oleo gels. The formulations used had 87,9% of goat meat, 1.1% of NaCl, 7% of $H_2O$ and 4% of pork fat (GPF) or olive oil (GO) or sunflower oil (GSF) Prosella® gels. The aw values differed statistically towards all formulations, the only burger that differentiated pH from the other two was GO, being lower than GPF and GSF. In colour parameters, GSF showed the lowest luminosity values and the highest heme pigments content. Ashes and protein content differed statistically towards all burgers, along with the fat, although the formulations could not affect those, as the ingredients were standardized. Concerning the lipidic quality indicators, GPF (40.84%) showed the higher content of SFA, while GO and GSF did not differentiate, moreover the MUFA content differed between all of formulations, with GO (57.54%) presenting the highest one, followed by GPF (49.19%) and GSF (40.30%). Atherogenicity and thrombogenicity indexes were also determined, GPF burgers had the highest value (0.52 and 1.26) while GO and GSF had the lowest values. Evaluating the results, is possible to say that the use of oleo gels improved the lipidic quality of the burgers and trough discriminant analysis the three formulations could be correctly identified by two FA (C18:2n-6 and C20:1n-9) with a high rate of accuracy.



**A longitudinal study of the microbiological quality of goat's raw milk cheese during ripening**

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*Transmontano* goat's cheese is a cheese with protected designation of origin, made of goat's raw milk produced in the *Trás-os-Montes* Northern region of Portugal. The objective of this study was to assess the between-batch variability in selected quality properties, and the evolution of hygiene/safety indicator microorganisms in cheese during ripening. Samples of goat's raw milk and cheeses were taken every 20 days along the 60-day ripening from four production batches surveyed from an artisanal producer. Longitudinal models showed that, between-batch variability in quality properties was high, with intra-class correlations initially varying between 30.4% (water activity) and 60.5% (*Staphylococcus aureus*), although such variability was largely reduced during ripening. While total viable counts [TVC] and lactic acid bacteria [LAB] counts increased (P<0.001) every sampling day (TVC: $Day_0$=9.78, $Day_{20}$=11.34, $Day_{40}$=11.93, $Day_{60}$=13.18 log cfu/g; LAB: $Day_0$=9.24, $Day_{20}$=10.87, $Day_{40}$=11.93, $Day_{60}$=13.06 log cfu/g), fastidious bacteria such as *S. aureus*, *Clostridium* spp. and *Listeria* spp. dropped during ripening to safe levels (2.28 [SE=0.284], 1.23 [SE=0.594] and <1.22 log cfu/g, respectively). In addition, the growth of TVC in cheese was affected by milk pH (P=0.001) and water activity (aw; P=0.009), TVC levels in milk (P=0.004), initial pH (P=0.001) and aw of cheese (P=0.021), and protein (P=0.037) and fat contents (P=0.036); whereas the development of LAB was mainly driven by milk pH (P=0.043) and aw (P=0.008), and the initial LAB counts in milk (P=0.004). The progressive drop of *Clostridium* spp. during ripening was regulated by all of the intrinsic properties mentioned above, whilst the inactivation of *Listeria* spp. until undetectable levels was highly associated to milk pH (P=0.006), initial pH of cheese (P=0.016) and lactic acid concentration (P=0.049). The absence of *L. monocytogenes* and *E. coli* O157:H7 reassured the microbiological safety of the Portuguese Transmontano cheese.