

Cows of different QpH provided milk with similar coagulation properties (rennet coagulation time, curd firming rate and curd firmness after 30 minutes) and cheese yield. Conversely, curd firmness and cheese yield linearly decreased as SCC content of milk (≤ 100 ; 100 to 400; $>400 \times 10^3$ cells/ml) increased. In conclusion, QpH altered SCFA content and proportion in rumen fluid and rumen activity, but not milk quality traits, even in cows with rumen pH <5.8 .

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Effect of the wooden vats on traditional cheese characteristics

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Wooden vats have been used for centuries to collect and transform milk by farmers and cheesemakers all over the world. Nowadays, the tree species mostly used to this purpose are Douglas fir and chestnut. The use of wooden vats is mandatory for the production of all PDO Sicilian cheeses, such as Ragusano, Pecorino Siciliano, Piacentinu Ennese and Vastedda della valle del Belice. In the last years, the wooden vats have been deeply explored for the microbiological characteristics and they are covered by biofilms mainly represented by lactic acid bacteria (LAB) entrapped in a polysaccharide matrix. These microbial associations do not include pathogenic species. Up to date, there are no studies performed on the effect of wooden vats made with different tree species on the characteristics of the final cheeses. Thus, this aspect represents the main aim of the present study.

Eight wooden vats (20-L volume) were made with eight tree species (Calabrian Chestnut, Sicilian Chestnut, Cedar, Cherry, Ash, Wot, Pine and Poplar) and subjected to 15-d whey treatment for the activation of the LAB biofilms on the internal surfaces. All 8 wooden vats were then used to produce PDO Vastedda della valle del Belice cheese, according to the EU Regulation. Each cheese making (carried out in duplicate at 7-d interval) was obtained from 14 l of raw ewes' milk. The cheeses were packaged under vacuum and, after 14 days of refrigerated storage, analysed for their physical (pH,

a_w , CIELab parameters) and chemical composition (DM, fat, protein, N soluble, ash, salt) according to official methods. Moreover, peroxides, TBARs and polyphenols were also determined. Vastedda cheeses were subject to a sensory evaluation following the ISO indications. Several ANOVA models were employed to statistical analyses.

The results of the characterization of the cheeses revealed that the wooden vats did not influence their chemical composition, while Lightness (L^*) and hue angle were significantly modified by the tree species (table 1). In particular, the cheeses produced in vats made with Calabrian and Sicilian chestnut were characterized by a lower yellow intensity than the other tree species. Poplar vat produced Vastedda cheeses with significant lower peroxidase oxidation (1.68 mg/kg) and TBARs (0.0042 mg MDA/100 g of fat), probably due to the effect of natural antioxidant transferred from the wood to the milk. No particular differences among cheeses were appreciated by the panellists.

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Vitamin D content in donkey milk: preliminary results

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Vitamin D is an essential nutrient that plays a crucial role in the calcium homeostasis and bone metabolism and also acts as an hormone. Humans synthesize most of their vitamin D requirement from sunlight. However, an oral intake of vitamin D may be an important source in winter, when the UV-B-related synthesis is limited and for people who may not be exposed to sunlight. However, only a few foodstuffs, mainly of animal origin, provide a considerable source of vitamin D thus limiting the possibility of fulfilling the requirements of this vitamin. Milk contains above all vitamin D₃ and D₂. Although there are several studies on the content of vitamin D in bovine milk, there is little information regarding donkey milk. Therefore, the aims of this paper is to carry out a preliminary evaluation of the vitamin D content in donkey milk and to investigate its seasonal modifications. Raw bulk milk samples were collected for 10 months, every 15 days, from a dairy farm that produces donkey milk for human consumption. All the samples were analysed for chemical composition and vitamin D content by HPLC after extraction by the partially modified Silva et al (1992) method. Donkey milk showed a higher vitamin D content (2.31 $\mu\text{g}/100 \text{ ml} \pm 0.83$) compared to bovine and human milk. Vitamin D in donkey milk showed

seasonal variations as reported in cows. In particular, vitamin D had a higher concentration in the summer than in winter, probably due to the different sun exposure of the animals. In conclusion, donkey milk shows a considerable vitamin D content, which could be useful to meet the deficiencies of this vitamin in humans. Further investigations are necessary to improve the vitamin D content in donkey milk through increasing its endogenous synthesis and transfer in milk and to clarify other variability factors.

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Factors affecting the detailed mineral profile of bovine milk from multi-breed herds

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The aim of this study was to assess the independent variation of breed and herd in the content of 15 minerals in individual milk samples collected from cows raised in multi-breed herds. The 27 herds were classified into two categories according to average energy corrected milk productivity. Milk samples were collected from 238 cows of 6 breeds: 3 specialized dairy (Holstein Friesian, Brown Swiss, and Jersey) and 3 dual-purpose (Simmental, Rendena, and Alpine Grey), and were analyzed for macro- (Ca, P, Na, K, Mg, S), essential micro- (Cu, Fe, Mn, Se, Zn) and environmental micro- (B, Si, Sn, Sr) elements using Inductively Coupled Plasma-Optical Emission Spectrometry (ICP-OES). Data were analyzed using a linear mixed model that included fixed effects of DIM, parity, breed and herd productivity, and a random effect of herd-date within productivity level. An extended model was obtained from the previous one including linear covariate of milk yield, fat%, protein%, and SCS, to distinguish the direct effect of breed on minerals from the indirect effect due to breed differences in terms of milk yield and quality. Results showed that the effect of herd-date varied across minerals, but was large especially for environmental minerals (47% to 91% of total variance), while for macro- and essential micro-minerals the effect ranged from 11% to 61%. Milk samples collected from

farms with high levels of productivity had a richer mineral profile than samples from low-productivity herds. Parity only influenced macro-minerals, with the exception of Ca and S, while DIM influenced almost all minerals, with a few exceptions among the environmental elements. Large differences were observed among breeds, both between the specialized and dual-purpose breeds, and within the two groups, and these differences remained even after adjusting for milk yield and quality. Milk samples from the Jersey and Brown Swiss cows had better mineral profiles than milk from Holstein Friesian cows; the other breeds of Alpine origin produced milk of intermediate quality. Our findings suggest that breed has a stronger effect on macro- and some of the essential micro-minerals than herd productivity, parity and DIM. Moreover, the variance of individual cows was greater than the variance of herds. We conclude that improvements in the macro- and micro-mineral contents in milk depend more on genetics (breed) rather than on environmental and management factors (productivity, herd, mineral supplementation).

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Influence of dairy farming system and animal factors on sensory descriptors of model cheeses from individual cows

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The aim of this study was to investigate the effect of several sources of variation related to dairy farming system and cow characteristics on sensory profile of ripened model cheeses. Individual raw full-fat milk samples (1500 mL) of 1224 Brown Swiss cows were collected from 83 herds belonging to 4 dairy systems (ranging from traditional to modern ones, with different feeding and management systems) located in Trento Province (Italy). Milk samples were processed according to a lab cheese-making procedure to obtain model cheeses. Trained panelists assessed the sensory profile of all model