

Hygienic quality of experimental goat raw milk cheeses manufactured within research projects

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INTRODUCTION

The Animal Production Unit of the Canarian Institute for Agricultural Research (ICIA, by its acronym in Spanish) has been carrying out research projects with experimental cheeses made with raw milk for more than 30 years.

ICIA PROJECTS

- Valorization of traditional goat cheeses linked to an indigenous breed. RTA2014-00047

✓n= 11 vats (different breed combination) x 3 cheese replications = 33 cheeses (ADN exp.)

✓n= 3 vats x 3 breeds x 3 cheese replications x 3 ripening times = 81 cheeses (breeds exp.)



- Cheese residue (whey) for feeding goats in farms of artisan cheese. RECUALCA

✓n = 3 vats x 2 experimental groups x 3 cheese replications = 18 cheeses (Whey exp.)

✓n= 3 vats x 2 experimental groups x 3 cheese replications 18 cheeses (Silage exp.)



- Valorization of traditional Canarian rennets. CUAQUECAN

✓n= 1 vat x 4 type of rennet x 3 cheese replications x 3 days = 24 cheeses



- Adaptation of quality parameters in Canarian PDO cheeses to market preferences. DOQUECAN

✓n= 4 cheese factories x 3 cheese replicates x 6 ripening times = 82 (Palmero cheese)

✓n= 6 cheese factories x 3 cheese replicates x 6 ripening times = 108 (Majorero cheese)



- Characterization of Gomero and Herreño Cheeses, effect of smoking and determination of specific indicators. CAL 02-075-C3

✓n= 6 smoking materials x 3 days x 3 cheeses = 54 cheeses



- Study of smoking process on cheese quality. Optimization of the smoking process in Palmero Cheese. CAL 00-054-C3

n= 4 smoking materials x 3 days x 3 cheeses = 36 cheeses

- Use of agro-industrial by-products silage for goats feeding and their effect on milk and cheese quality. RTA2008-00108

✓n= 1 vat x 3 experimental groups x 3 cheese replications x 4 days = 36 cheeses (banana)

✓n= 1 vat x 3 experimental groups x 3 cheese replications x 4 days = 36 cheeses (silage)



MATERIAL AND METHODS

Several research has been developed over many years, studying multiple factors that affect the physicochemical and sensory quality of experimental cheeses made from raw goat milk:

- Coagulants
- Diets: autochthonous forages, byproducts
- Smoking process
- Genetic aspects: breeds
- Ripening practices

Experimental cheese samples were analyzed for microbiological status

•694 cheese samples

•Official methods

- ❖ *Staphylococcus aureus coagulase+* PNT-ANA-M-0014
- ❖ *Listeria monocytogenes* PNT-ANA-M-0006 y PNT-ANA-M-0005
- ❖ *Salmonella* PNT-ANA-M-0012

•Limits above which a cheese is considered unfit are:

- ❖ *Staphylococcus aureus coagulase+* > 100,000 cfu / g
- ❖ *Listeria monocytogenes*: absence in 25 g
- ❖ *Salmonella*: absence in 25 g

- Research and Transfer Networks between the Canary Islands and West Africa for livestock self-sufficiency. MAC-GANAFRICA

✓n= 1 vat x 2 experimental groups x 4 different diets x 3 cheese replications x 4 days = 72 cheeses



- Physicochemical and organoleptic characterization of Canarian PDO cheeses: alternatives to improve quality. RTA 01-092

✓2 vats x 2 experimental groups x 3 cheese replications x 4 days = 48 cheeses (Palmero diet)

✓2 vats x 2 experimental groups x 3 cheese replications x 4 days = 48 cheeses (Majorero diet)



CONCLUSIONS

- All the cheeses met with the microbiological limits of EU regulations

