

Goats two years old showed higher ( $P < 0.05$ ) fat yield than goats one year old (83.11 vs. 59.41 g/day). The protein and lactose contents did not differ ( $P > 0.05$ ) among diets (2.71% and 4.04%, respectively). Interaction effect was observed for protein, lactose and total solids yield, where goats one year old who fed SB and SBDY diets had lower ( $P < 0.05$ ) values than those two years old at first kidding. Similar values were observed ( $P > 0.05$ ) to goats fed DY diet in both ages at first kidding. In conclusion, dry yeast of sugar cane can be fed to milking goats without changing milk quality. Primiparous goats with one year of age at first kidding have lower milk yield fat-corrected than goats with two years of age but milk quality is not alter by age at first kidding.

### **Chemical composition, density, pH and protein profile of goat milk and goat cheese whey elaborated with 3 different fat contents.**

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#### **Abstract / Resumen:**

Majorera goat milk with three different fat content (5%, 1.5% and 0.4% fat) were obtained using a skimmer and goat cheese were prepared by traditional method from Canary Islands (Spain) with these 3 types of milk. Milk and cheese whey samples were analyzed for: pH, gross chemical composition and density; percentage of proteins was determinate with electrophoresis in SDS-PAGE gel. It was observed that milk pH decreased as fat content was lower. However cheese whey pH decreased slightly as milk fat content was lower but no statistically significant differences between the three types of whey were observed. The remaining fat percentage in cheese whey was significantly minor as milk fat content was reduced (remaining 10, 4 and 0% cheese whey fat content from full-, reduced- and low-fat milk, respectively). The protein in milk decreased slightly as fat is removed by centrifugation. Protein content in whey was 3 times lower than in milk but no significant differences were found between the three types of cheese whey. Lactose in milk ranged from 4.5 to 5%, increasing significantly as fat content decreased. However the whey obtained from the three cheese making process showed similar lactose content. Lactoferrin, serum albumin, beta-lactoglobulin and alpha-lactalbumin passed without changes of concentration from the milk to the whey and no significant differences were found in these proteins. Moreover, no significant differences were found in the percentage of these proteins between the 3 different types of milk used, so the protein profile of cheese whey have not been modified by the centrifugation. After skimming beta-casein showed a statistically significant increase although is was shown a slightly increase in the alphas2-casein concentration. A difference of whey proteins, alphas2-casein, beta-casein and kappa-casein were not detected in cheese whey. The 2% of alphas1-casein was detected in all types of cheese whey of total milk protein, thus, part of this protein was lost with the cheese whey. In conclusion: as it was expected, all whey proteins were detected on whey after cheese making. There was also evidenced a small proportion of alphas1-casein independent of the treatment of the milk. Cheese producers must take account of the important losses they are having in cheese whey. Whey chemical composition, specially in the full-fat milk cheeses, had relative high total solids so it can be used to produce ricotta or other milk product. The optimum milk fat content should be established in order to minimize fat losses in the cheese whey however it is also possible to reuse the cheese whey when cheese are

elaborated with high fat milk.

### **Correlation between protein profile and chemical composition, pH and texture parameters in cheese elaborated with three fat contents milk ripened at 28 days.**

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#### **Abstract / Resumen:**

72 goat's raw milk cheeses were elaborated according to the traditional hand-made cheese practices in Canary Islands (Spain), cheese were made with three different fat content milk: full-fat milk cheese (FFC, 5% fat in milk), reduced-fat milk cheese (RFC, 1.5% fat in milk) and low-fat milk cheese (LFC, 0.4% fat in milk). At 28 days of ripening, the gross composition, pH and texture profile analyze were analyzed and water-soluble proteins were extracted. Protein extract was separated on SDS-PAGE gel by duplicated. Person's correlation analysis was performed between the electrophoretic bands values (intensity x area) and chemical composition (moisture, protein, fat and fat in dry matter), pH and texture profile analysis. alphas2-casein, peptides 2 and 3 showed significant correlations with all chemical parameters (moisture, protein, fat and fat in dry matter content), and the &alphas1-casein was correlated with pH and total protein percentage. Intensity x area value of alphas2-casein was positive correlated with moisture and total protein (0.60 and 0.64, respectively), and however showed negative correlation with cheese fat and fat on dry matter (-0.63 and -0.64), and it is according to the less rate of degradation of this casein. Also high correlations were found between peptides 2 and 3 and chemical parameters, those correlations were much higher with peptide 3. Positive correlation was observed between internal and external pH and alphas1-casein (0.58 and 0.53) and alphas2-casein (0.65 and 0.57) and negative with peptides 2 and 3. It's known that as cheese fat content decrease, pH is higher and the casein rate of degradation is less. Fracturability, hardness, cohesiveness and gumminess correlated positively (0.65, 0.67, 0.62 and 0.62, respectively) as well adhesiveness and elasticity showed a negative correlation (-0.53 and -0.68, respectively) with alphas1-casein and alphas2-casein. Similar correlations were found between peptides 2 and 3 and the texture parameters studied, although the correlations were higher with peptide 3. In conclusion, the main correlation observed was that when pH increased, the percentage of casein increased too, and concomitantly, the proportion of peptides 2 and 3 decreased. At day 28 of ripening is possible to establish a stronger relationship between the electrophoretic bands profile on SDS-PAGE and texture parameters in goat cheese elaborated with raw milk.

### **Gross chemical composition and texture profile analysis of full-fat, reduced-fat and low-fat goat cheese elaborated with raw milk using traditional procedures in Canary Islands (Spain).**

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