Comparative study on physico-chemical changes during dry aging of Black Angus and Romanian spotted beef

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Background

The *Black Angus* (BA) meat is considered worldwide as the ideal choice for a successful, tasty and at the same time healthy steak.

The Romanian spotted (Rs) is known as a mixed bread, but it is exploited almost exclusively for milk in Romania and– rarely for meat. Therefore, few studies have considered the changes in the Romanian spotted beef during aging, a very commercially appealing technique.

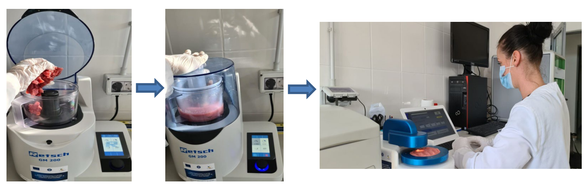
Aim and objective

The aim of this study was to compare the physico-chemical changes in Black Angus and Romanian spotted beef after a 21-day of dry aging period.

Materials and methods

The both beef sirloin (fig. 2) used in this research were bought from a Romanian farm, near to Cluj. Three cuts from each breed (BA and Rs) were sampled in day 0 and were preserved at -18°C until further analysis. The other 3 cuts of Rs and BA tenderloin were dry aged at 1-2°C and < 90% relative humidity for 21 days (fig. 1).

At the end of the aging period, each sample was minced and analysed by Food Scan Lab.



The measured parameters were: content of fat (%), content of protein (%), content of collagen (%), content of water (%) and collagen-protein ratio. The results were expressed as mean of 3 measurements ± standard deviation.

The data was statistically analyzed: Microsoft Office Excel and ANOVA.

METHODOLOGY

SAMPLES: 12 cuts of Sirloin | 6 from Black Angus and 6 from Romanian spotted |dry aging PARAMETERS: T=0-2 °C, rH 75-85%, 21 days

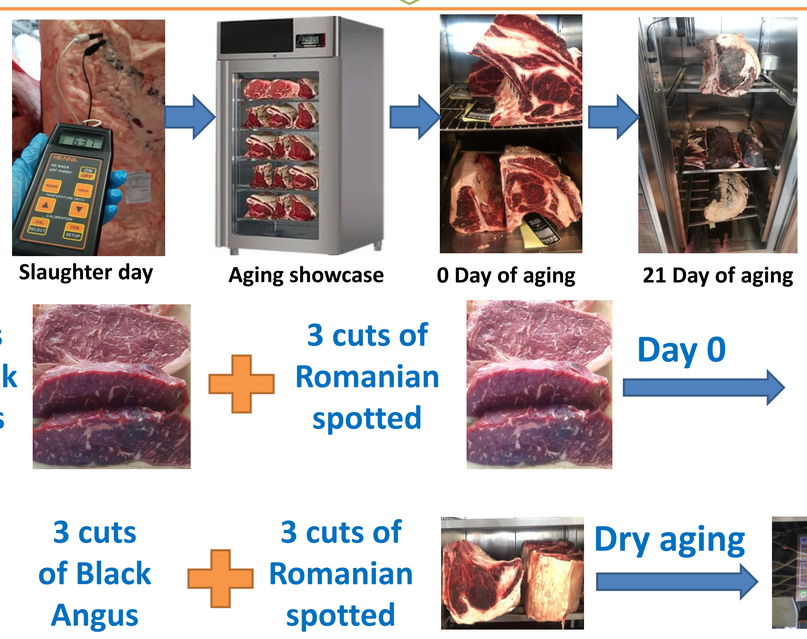


Figure 1. Samples processing methodology

DATA INTERPRETATION (ANOVA)

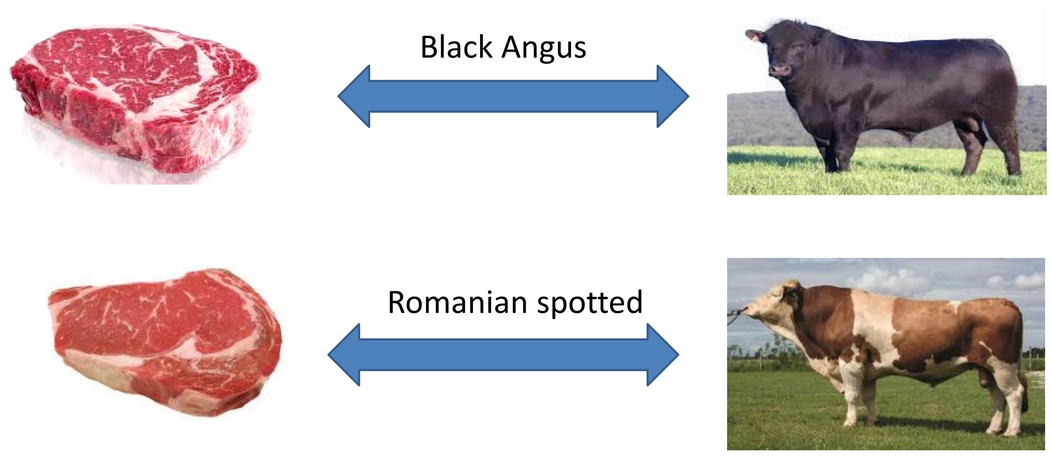


Figure 2. Sirloin cuts of Black Angus and Romanian spotted

Results and discussions

According to Figures 3 and 4, the physico-chemical changes during the aging period are similar for both breeds, respectively: the content of protein and water in the Rs and BA sirloins were significantly higher at the end of the aging period: 17.12% ± 0.51 respective 16.9% ± 0.50 compared to 15.18% ± 0.51 and 15.6% ± 0.50. The fat content and collagen to protein ratio significantly decreased in both case (30.35% ± 1.98 compared to 22.44% ± 0.91 in Rs case and 31.08% ± 1.05 compared to 27.23% ± 0.89 in BA case).

Following the ANOVA analysis, in the case of both sirloin cuts, the p values recorded were >0.05, which means that the changes that occur on the 21st day of aging are significantly different from the 0 day of aging.

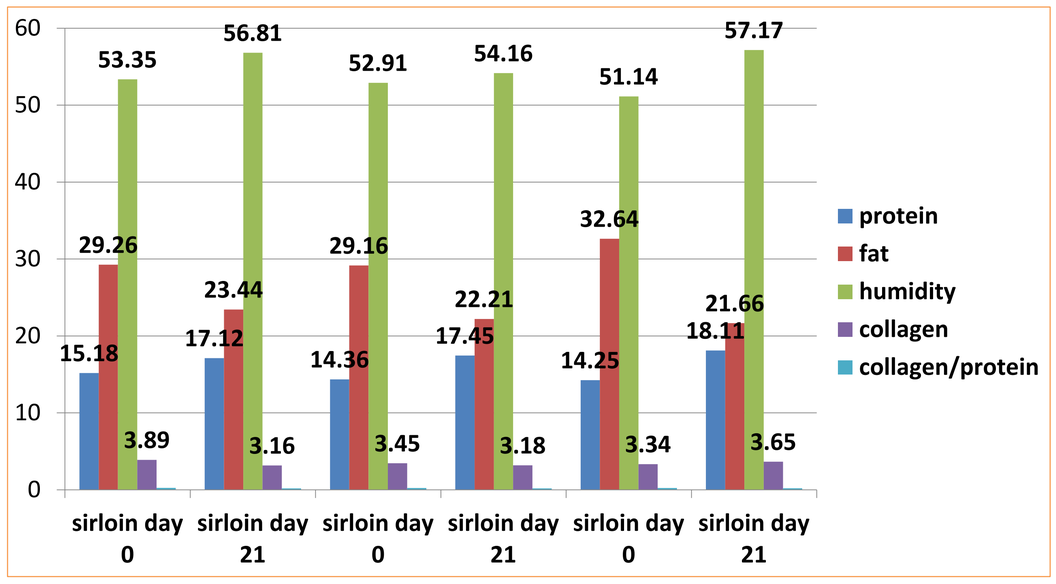


Figure 3. Results of **Romanian spotted sirloin** physico-chemical changes during aging period

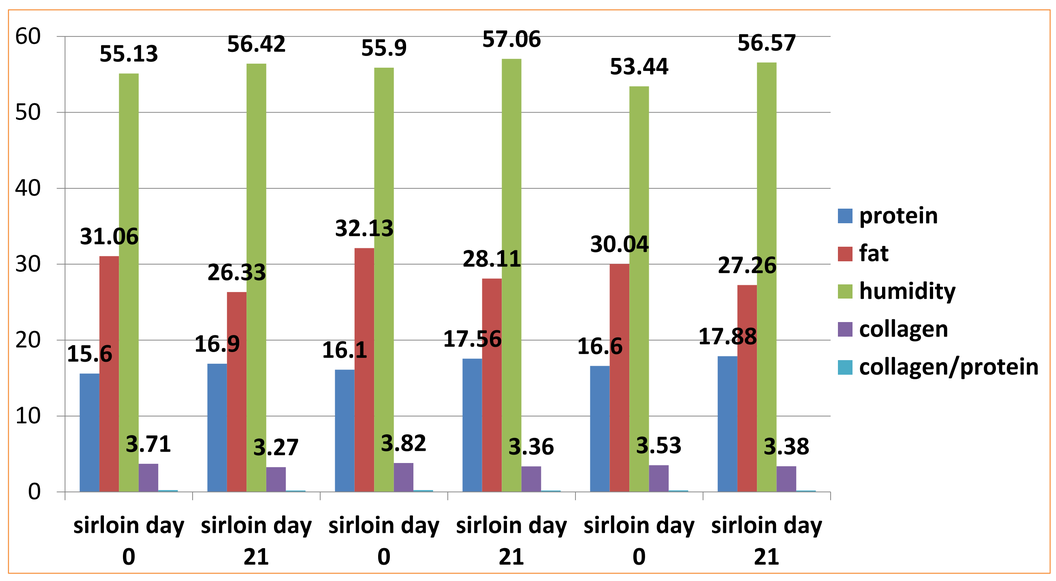


Figure 4. Results of **Black Angus sirloin** physico-chemical changes during aging period

Conclusion

In the current study, for both breeds, changes in physico-chemical parameters during aging period have the similar trend: decreasing for fat content and collagen-protein ratio and increasing for protein and water content, which means that changes in the elements analyzed, are not influenced by the breed of meat origin.