Can the introduction of different olive oil cakes affect the carcass quality of Bísaro pork?

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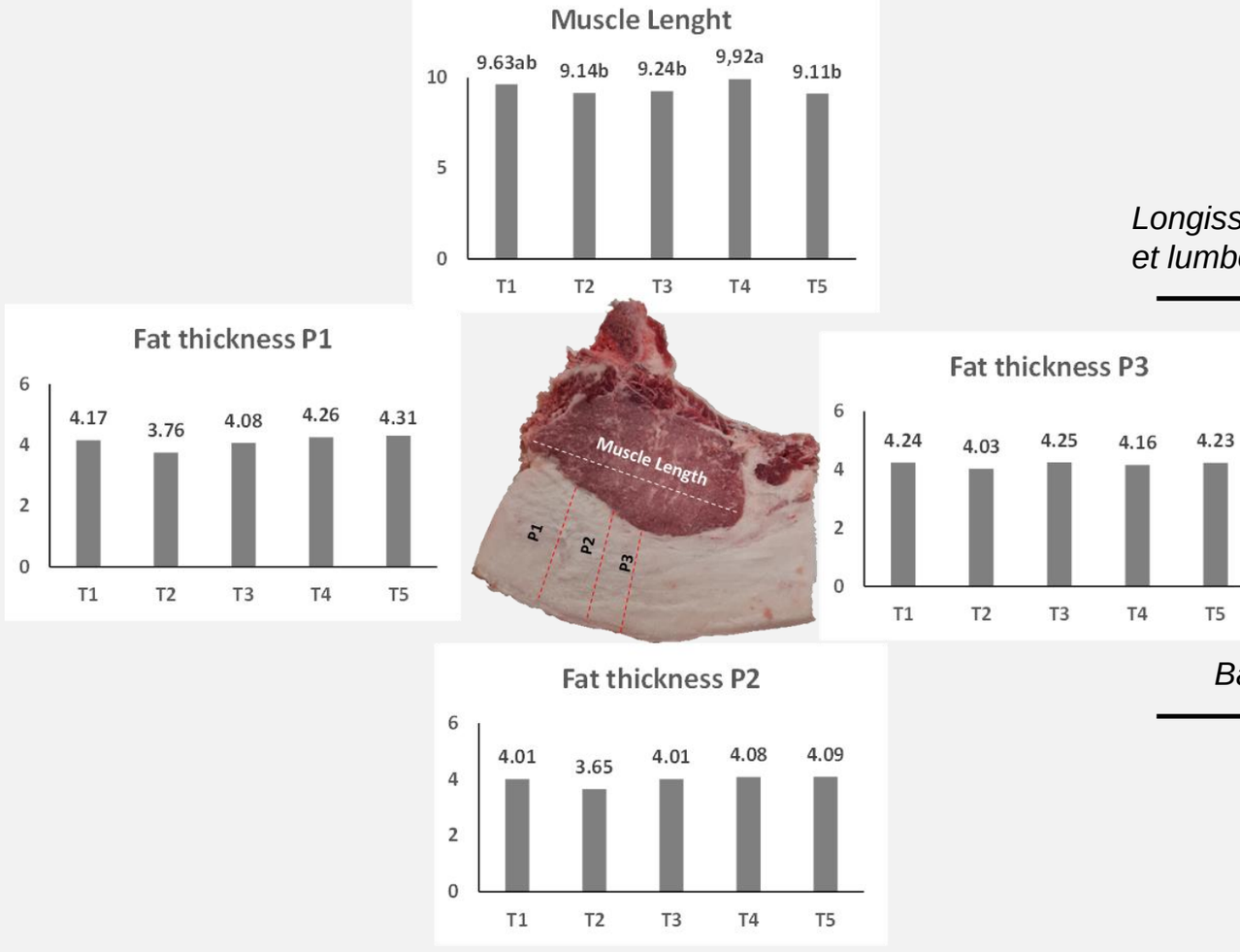
Introduction and Objetives

The olive sector produces considerable amounts of by-products, being some of them toxic and dangerous to the environment. Therefore, it´s urgent to develop strategies to valorize and use these resources. The main objectives of this study were the valorization of by-product of the oil industry in the feeding of Bísaro pig, evaluating the potentiality of inclusion of different olive cakes.

Materials and Methods

Results

The following figures show the measurements, chemical composition and fatty acid profile of the carcass, meat and fat quality obtained from the animals submitted to the 5 different treatments. Significant differences were observed in the length at the level of the last rib and 7th rib. In all treatment´s and the LTL and backfat studies, palmitic acid (C16:0), oleic acid (C18:1n-9) and linoleic acid (C18:2n-6) were the most common SFA, MUFA and PUFA presented, respectively. No significant differences were found for ashes, haem pigments, collagen and protein contents.



Longissimus thoracis et lumborum muscle

Backfat

Figure 2. Muscle and backfat measurements at the 13th and 14th rib of Bísaro carcass (P1 – 4.5 cm from the dorsal midline; P2 – 6.5 cm from the dorsal midline; P3 – 8 cm from the dorsal midline).

Table 1. Fatty acids profile of intramuscular fat of the *Longissimus thoracis et lumborum* muscle and Backfat from the Bísaro pig breed. Effect of treatment with olive cake

Fatty acids LTL	Diets T1	T2	T3	T4	T5	SE	*Significance*
ΣSFA	40.52	42.67	40.33	40.88a	39.41	1.10	ns
ΣMUFA	52.57	50.04	52.80	52.63a	52.68	1.24	ns
ΣPUFA	6.91	7.29	6.87	6.49	7.91	0.51	ns
PUFA/SFA	0.17	0.17	0.17	0.16	0.20	0.01	ns
n-6/n-3	25.21	29.93	26.78	21.12	26.25	2.59	ns
IA index	0.53	0.62	0.53	0.54	0.50	0.04	ns
IT index	1.31	1.55	1.31	1.33	1.25	0.10	ns
h/H	1.99	1.93	2.01	1.94	2.09	0.06	ns

Fatty acids BACKFAT	Diets T1	T2	T3	T4	T5	SE	*Significance*
ΣSFA	40.51	39.83	38.69	40.60	39.40	0.73	ns
ΣMUFA	48.49	48.71	50.11	48.38	49.10	0.67	ns
ΣPUFA	11.00	11.46	11.20	11.02	11.50	0.35	ns
PUFA/SFA	0.27	0.29	0.29	0.27	0.29	0.01	ns
n-6/n-3	22.00	22.19	20.75	21.15	21.84	0.53	ns
IA index	0.51	0.49	0.48	0.52	0.48	0.01	ns
IT index	1.29	1.25	1.19	1.29	1.23	0.04	ns
h/H	2.09	2.20	2.23	2.05	2.22	0.07	ns

Table 2. Chemical composition of *Longissimus thoracis et lumborum* muscle. Effect of treatment with olive cake.

LTL muscle	Diets T1	T2	T3	T4	T5	SE	*Significance*
Total fat (%)	4.86b	7.22a	5.54ab	5.60ab	6.52ab	0.66	*
Ash (%)	1.44	1.35	1.50	1.42	1.36	0.07	ns
Moisture (%)	70.10a	67.55b	68.98ab	69.51ab	69.04ab	0.79	*
Haem pigments (mg/g)	0.57	0.90	0.50	0.60	0.76	0.28	ns
Collagen (%)	1.15	1.41	1.20	1.44	1.46	0.16	ns
Protein (%)	22.68	22.40	22.88	22.45	22.80	0.38	ns

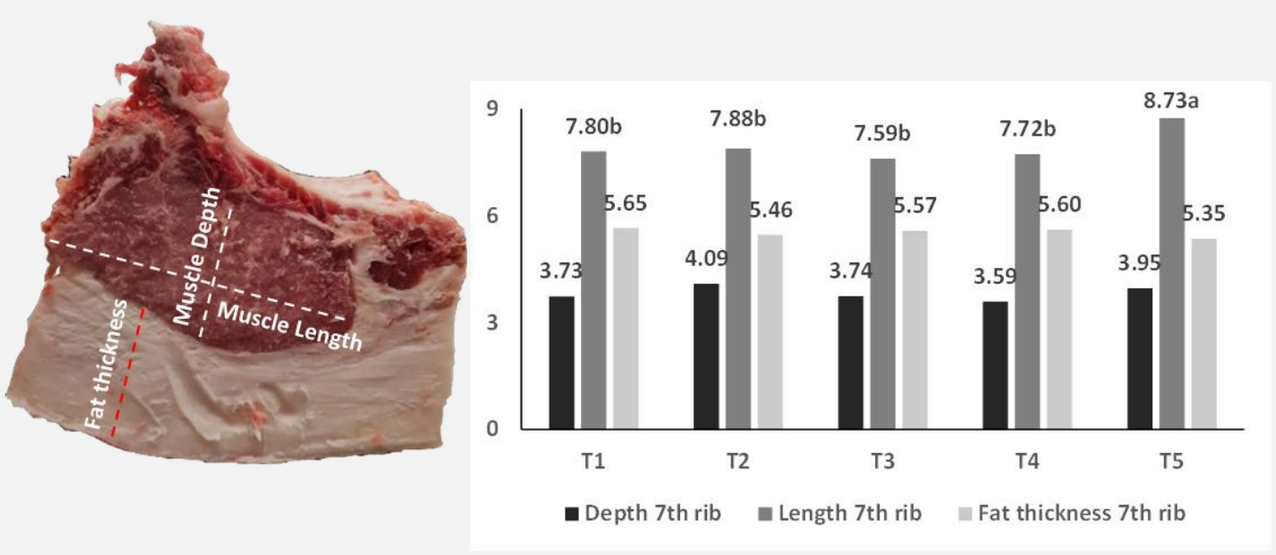


Figure 3. Measurements on *Longissimus thoracis et lumborum* muscle (LTL) the of Bísaro carcass at the 7th ribs of the loin joint

Conclusions

Considering all data obtained in the present research, the main conclusion of this study was that the inclusion of different olive cakes in the diet of Bísaro pigs did not affect the carcass characteristics as well as in the meat and fat quality. In the proportion of 10%, the olive cake can be used as another ingredient in the diet, valuing a by-product of the olive industry and reducing the environmental impact from olive-mill wastewaters from the extractive industries

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