

# BOOK OF ABSTRACTS

A photograph of several pigs in a forest. The pigs are in the foreground and middle ground, looking towards the camera. The background is filled with trees with yellow and orange autumn leaves. The ground is dirt and covered with fallen leaves.

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## **Loin and fat quality of Portuguese local Alentejano and Bísaro pigs and their crosses**

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Alentejano (AL) and Bísaro (BI) Portuguese local pig breeds cohabited in Ribatejo region for some time. Their crosses (RI pigs) and the products obtained, although appreciated, disappeared in the 1950's without being scientifically evaluated. To assess the meat quality of RI pigs, castrated males from AL, BI, ALxBI and BIxAL genotypes were studied within the framework of the TREASURE project. Raised in a traditional outdoor system and fed commercial diets *ad libitum*, pigs were slaughtered at ~65 (Trial 1, n=10 for each genotype) and ~150 kg live weight (LW) (Trial 2, n=9 for each genotype), and *Longissimus lumborum* (LL) and dorsal subcutaneous fat (DSF) physical-chemical traits were analysed. When compared to BI, AL pigs presented LL with lower moisture (trial 1 - 73.1 vs 74.7; trial 2 - 71.0 vs 72.1 g/100g; P<0.05), and higher IMF (trial 1 - 6.7 vs 5.5; trial 2 - 6.9 vs 6.0 g/100g; P<0.05) content. LL samples from AL also had higher myoglobin (trial 1 - 0.76 vs 0.54, P<0.007; trial 2 - 0.86 vs 0.45 mg/g, P<0.05) and lower total collagen (trial 1 - 13.9 vs 17.1, P<0.05; trial 2 - 13.1 vs 16.7 mg/g DM, P<0.01) content. As to RI pigs, compared to the pure genotypes, they presented intermediate values of protein, IMF and total collagen. However, LL content of moisture, total pigments and tenderness were similar to the ones from AL. When compared to BI, LL from AL pigs had similar proportions of saturated

(SFA) (trial 1 - 35.8 vs 36.8,  $P=0.126$ ; trial 2 - 34.2 vs 35.8 g/100g,  $P=0.094$ ), higher proportions of monounsaturated (MUFA) (trial 1 - 48.0 vs 40.2,  $P<0.001$ ; trial 2 - 48.4 vs 43.1 g/100g,  $P<0.05$ ), and lower proportions of polyunsaturated fatty acids (PUFA) (trial 1 - 16.2 vs 23.0,  $P<0.001$ ; trial 2 - 17.4 vs 21.1 g/100g, NS). RI pigs presented intermediate proportions of FA between the fatter (AL) and the leaner (BI) genotypes. Results of RI pigs, when compared to those of AL indicate their potential for the production of loins with the similar rich colour and tenderness, and with an intermediate FA profiles between AL and BI genotypes. As for DSF, when compared to BI pigs, AL presented lower moisture (trial 1 - 7.3 vs 11.0,  $P<0.0001$ ; trial 2 - 5.1 vs 5.8 g/100g, NS) and higher total lipids content (trial 1 - 85.0 vs 71.5,  $P<0.0001$ ; trial 2 - 88.9 vs 83.7 g/100g,  $P<0.05$ ). As for FA proportions, DSF from AL presented similar proportions of SFA (trial 1 - 38.8 vs 40.2; trial 2 - 39.8 vs 41.1 g/100g; NS), higher proportions of MUFA (trial 1 - 49.0 vs 44.3,  $P<0.0001$ ; trial 2 - 49.9 vs 46.2 g/100g,  $P<0.002$ ), and lower proportions of PUFA (trial 1 - 12.2 vs 15.6; trial 2 - 10.4 vs 12.7 g/100g;  $P<0.001$ ) when compared to BI. Again, the RI pigs had an intermediate proportion of FA between AL and BI genotypes. In both tissues, oleic acid (C18:1 n9) was the most abundant FA in all genotypes, followed by palmitic acid (C16:0). RI pigs could therefore be an alternative to using other breeds in commercial crosses with the pure genotypes when the production of pure breeds is not economically beneficial.

**Keywords:** Local pigs, Alentejano pig, Bísaro pig, Ribatejano pig, loin and fat quality

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