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MEAT SPECIES IDENTIFICATION BY POLYMERASE CHAIN REACTION TECHNIQUE TO AUTHENTICATE *ALHEIRAS DE CAÇA*

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The manufacture of traditional meat products is a long-established practice in the Northeast of Portugal, being *Alheiras* one of the most appreciated products. *Alheiras* are traditional smoked fermented sausages, mainly produced with pork and poultry meat in a mixture with bread and spices. Currently, game meat *Alheiras* (*Alheiras de caça*) are also available as very attractive meat products and prone to adulterations. To allow accurate information for consumers and avoid unfair competition among producers, it is important to develop efficient methodologies to assess meat species identification and verify the compliance with labelling.

This work aimed to develop analytical tools to assess authenticity of *Alheiras de caça* to contribute for their valorisation. For this purpose, polymerase chain reaction (PCR) was the technique of choice for its specificity, fastness, accuracy and sensitivity [1]. Specific primers were used for the detection of mitochondrial genes *cytb* or 12S rRNA, from which some were available on the literature while others were proposed for the first time in this work. PCR results revealed high sensitivity and specificity to detect the addition of pheasant, partridge, duck, rabbit, cow and hare in pork mixtures down to 0.01% and the addition of deer in pork down to 0.1%. The detection of chicken and turkey using the new designed primers enabled positive amplifications until 0.01% and 0.1%, respectively. The proposed methods were successfully applied to 18 commercial samples of *Alheiras de caça*, being detected several inconsistencies with labelling, including the absence of game species declared (pheasant, partridge, duck, deer, hare and rabbit) and the presence of meat species not labelled (cow, chicken and turkey). The conclusions seem to indicate the misleading labelling of *Alheiras de caça* and the need to valorise and protect this kind of traditional products.

References:

- [1] Mafra I., Ferreira I.M.P.L.V.O., Oliveira M.B.P.P. (2008). Food authentication by PCR-based methods. *European Food Research and Technology* 227, 649-665.



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