

Reducing the salt content in meat rissoles and its acceptability by the consumer.

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Studies have shown that a high salt intake is related to the development of cardiovascular and kidney diseases [1]. Currently, the Portuguese population has an average sodium consumption above twice the recommendation of the WHO, and processed foods are major contributors (75 to 80%) to sodium [2]. Salt reduction based mainly on voluntary agreements with the food industry is considered one of the most cost effective interventions to reduce salt consumption [3]. This work aims to study the effects of salt content reduction in the composition and acceptance of meat rissoles, a processed product.

The study was conducted in three phases: the first was the measurement of sodium and potassium by flame photometry and the second and third stages were two different types of sensory tests to test the consumer acceptability on the same samples. We performed a hedonic test on 40 subjects and also a triangular test to a group of 10 panelists.

A total of 12 groups were analysed, each including 20 samples. The groups differed regarding their content in salt (sodium chloride) and addition of herbs. Three types of pastry (“total salt pastry” vs. “half salt pastry” vs. “unsalted pastry”) were combined with four different kinds of filling (“total salt filling” vs. half salt filling” vs. “no salt filling” vs. “no salt filling with addition of herbs”). “Total salt” corresponded to a salt content similar to the traditional recipe of meat rissoles.

In the group of traditional recipe the maximum average of salt level was 1.28 g/100g while in the groups with no salt added the minimum average was 0.20 g/100g. The average potassium level was 0.15 g/100g and there were no significant variances between the groups. We found that generally consumers prefer the rissoles with 50 % salt reduction (“half salt pastry” and “half salt filling”). We also found that more than a half of the panelists preferred groups with salt reduction. The groups of samples containing herbs to mask the lack of salt had little acceptance by the consumers.

This study’s results may lead to a salt content reduction in this kind of food product, as well as to encourage the establishment of nutrition policies of salt reduction combined with the food industry.

[1] He, F. J. and G. A. Macgregor (2010), *Reducing population salt intake worldwide: from evidence to implementation*. Prog Cardiovasc Dis. 52: 363-382.

[2] Brown, I. J., I. Tzoulaki, V. Candeias and P. Elliott (2009), *Salt intakes around the world: implications for public health*. Int J Epidemiol 38(3): 791-813.

[3] Asaria P, Chisholm D, Mathers C, Ezzati M, R. B.(2007), *Chronic disease prevention: health effects and financial cost of strategies to reduce salt intake and control tobacco use*. Lancet. 370:2044-53.