

FAT QUALITY OF TUSCANY DRY-CURED HAM

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Abstract –

This study aimed to the chemical-nutritional characterization of Prosciutto Toscano dry-cured ham, an Italian Protected Designation of Origin (PDO) product, with especial attention to the fat fraction: C18:1 was present at the highest concentration and it accounted for nearly 50% of all fatty acids, followed by C16:0 and C18:2. In the trimmed out of fat sample the main change was found in the ratio between monounsaturated and polyunsaturated fatty acids. From a nutritional point of view, Toscano ham trimmed out of fat should be more suitable for low-calorie diets, whereas the nutritional fatty acids profile that better meet nutritional recommendation is given by Toscano ham.

Key Words – Fatty acids, ham, macronutrients.

I. INTRODUCTION

Dry-cured ham is the most valuable meat product worldwide. Its high consumer acceptance is mainly due to the unique sensory properties, strictly linked to the characteristics of the raw meat (including pig breed, age and feed composition) and the ripening process (Sánchez del Pulgar et al. [1]). *Prosciutto Toscano* dry-cured ham is produced from heavy pigs following the guidelines of the homonymous Protected Designation of Origin (PDO). This study aimed to the chemical-nutritional characterization of *Prosciutto Toscano* dry-cured ham, with especial attention to the fat fraction.

II. MATERIALS AND METHODS

Ten dry-cured hams were obtained from 5 manufactures (2 pieces per manufacturer). For each dry-cured ham, the central portion of the piece (4 cm thickness, at the level of the diaphysis middle of the femur) was cut and divided on two portions (2 cm thickness each). One of these pieces was trimmed after removing the surface, while the other after removing the visible fat [2]. Proximate composition analysis was conducted as described by Lucarini et al. [2]. Fatty acid profile was studied after Bligh & Dyer extraction [3] and acid-catalysed trans-esterification according to Christie [4].

III. RESULTS AND DISCUSSION

Table 1 shows the proximate composition and fatty acid profile of the Toscano dry-cured ham. After the removal of the external fat of Toscano ham, the protein content increases up to 31.6% while the lipid content declines of 61.6% (Tab.1). At the same time, Fatty acid composition is profoundly modified (Tab.1). The content of different fatty acids in the products under study varied: the monounsaturated acid C18:1 was present at the highest concentration and it accounted for nearly 50% of all fatty acids, followed by C16:0 (approx. 21% of the total fatty acids) and C18:2 (approximately 14% of the total fatty acids). In the trimmed out of fat sample the main change is evident in the ratio between monounsaturated and polyunsaturated fatty acids (table1); there was a 6% decrease of monounsaturated fatty acids in favour of polyunsaturated fatty acids: the decrease of monounsaturated fatty acids was associated with oleic acid, whereas, for polyunsaturated fatty acids, an increase in linoleic and arachidonic acids was recorded.

Table 1 Proximate composition and fatty acid profile of Toscano dry-cured ham (normal and trimmed out of fat).

	Toscano Hamtr	T. Ham trimmed out of fat
Proximate composition*		
Moisture	43.48 ± 1.91	51.00 ± 2.24
Lipids	22.79 ± 3.69	8.75 ± 0.75
Proteins	25.18 ± 2.84	31.60 ± 2.15
Ash	6.46 ± 1.03	7.18 ± 1.06
Fatty Acids**		
C10:0	0.17 ± 0.04	0.17 ± 0.03
C12:0	0.18 ± 0.04	0.14 ± 0.01
C14:0	1.59 ± 0.07	1.29 ± 0.07
C16:0	20.97 ± 0.70	20.94 ± 0.57
C16:1	3.11 ± 0.06	2.86 ± 0.25
C17:0	0.23 ± 0.04	0.21 ± 0.06
C17:1	0.29 ± 0.02	0.21 ± 0.00
C18:0	8.86 ± 0.83	10.40 ± 0.31
C18:1	46.49 ± 0.19	40.83 ± 0.93
C18:2	14.02 ± 1.37	17.20 ± 0.25
C18:3	0.69 ± 0.01	0.62 ± 0.03
C20:0	0.19 ± 0.07	0.17 ± 0.07
C20:1	1.12 ± 0.02	0.74 ± 0.11
C20:2	0.73 ± 0.11	0.70 ± 0.06
C20:4	1.35 ± 0.39	3.50 ± 0.22
Σ SFA	32,19	33,32
Σ MUFA	51,01	44,64
Σ PUFA	16,79	22,02

* Expressed as g/100 g. ** Expressed as percentage of total fatty acids.

IV. CONCLUSION

According to Italian dietary intake recommendations, not more than 30% of the energy supplied should come from fat, including up to 10% from saturated fatty acids, 4% to 8% from polyunsaturated fatty acids of the n-6 series, and 0.5-2.0% from polyunsaturated fatty acids of the n-3 series; the other portion of energy should be supplied with monounsaturated fatty acids (SINU 2014). From results, Toscano ham trimmed out of fat should be more suitable for low-calorie diet, whereas the nutritional fatty acids profile that better meet nutritional recommendation is given by Toscano ham.

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