CLASSIFICATION OF GREEK MEAT PRODUCTS ON THE BASIS OF pH AND WATER ACTIVITY (a_w)

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A. ABSTRACT

The aim of this study was to classify the Greek meat products on the basis of pH and a_w, in groups stable to storage under the recommended conditions.

The a_w and the pH of Greek meat products of several types were measured, using for the a_w - measurements an electric hygrometer, the Novasina and for the pH a glass membrane electrode. For each sample three measurements for both parameters have been taken and the mean value was calculated and the standard deviation as well.

Based on the above measurements and according to Rodel's(1975) criteria a suggestion for their classification was made. The meat products were grouped in three categories: *'easily perishable'*, *'perishable'* and *'self-stable'*.

The conclusion reached from the measurements of pH and a_w are:

A. The two parameters are greatly influenced by the way of manufacture and the recipe.

B. Certain meat products including in the same category could be classified in all Rodel's groups.

The most noticeable example are the traditional sausages (large size). These belong in the three categories, the *'easily perishable'*, *'perishable'*, *'self-stable'*. As well as , certain heat treated meat products which belong in the two first Rodel's groups, 'easily perishable' and *'perishable'*. Because of their wide range of a_w- and pH-values.

C. Different manufacturing methods(particularly in ripening and curing) often result in distinctly different individual products falling within the same broad group. As an example in the group of the *'easily perishable'* are included certain heat treated, semi-fermented, and traditional meat products.

The measurement of pH and a_w-values has been considered in relation to this problem. Thus, according to their a_w- and pH-values they must be stored: at temperature ≤ 5°C, the '*easily perishable*' products **(Group A)** with pH > 5.2 and a_w > 0.95 : In this category belong certain of the heat treated such as **'parisaki'** (Table 7a, Table 13, Table 15), **'pariser'** (Table 7b, Table 13, Table 15), **'skordato No 2,3'** (Table 7e, Table 13, Table 15), **'mortadella type salami'** (Table 7g, Table 13, Table 15), **'frankfurter type sausages No 1,2'** (large size)(Table 7c, Table 13, Table 15), **'small cocktail sausages'** (Table 7f, Table 13, Table 15), **'ham (cooked)'** (Table 8a, Table 14, Table 15), **'bacon'** (Table 8b, Table 14, Table 15) and **'meat steak smoked'** (Table 8c, Table 14, Table 15). Moreover, certain semi- fermented meat products such as **'bier salami'** (Table 6, Table 12, Table 15) and the **'traditional sausages No 2'** (large size)(Table 4a, Table 10, Table 15).

At temperature ≤ 10°C must be stored the '*perishable*' meat products with 5.0 ≤ pH ≤5.2 or 0.91 ≤ a_w ≤ 0.95 **(Group B)**. Such as certain heat treated as **'pariser'** (Table 7b, Table 13, Table 15), **'skordato No 1'** (Table 7e, Table 13, Table 15), **'frankfurter type sausages No 3'** (large size)(Table 7c, Table 13, Table 15), **'frankfurter type sausages No 2, 3'** (small size)(Table 7d, Table 13, Table 15), **'bacon No 1,2'** (Table 8b, Table 14, Table 15) and **'meat steak smoked'** (Table 14, Table 15). Moreover, the **'traditional sausages No 3'** (large size)(Table 4a, Table 10, Table 15) and the

'traditional sausages No 2' (small size) (Table 4b, Table 10, Table 15) .

Finally, there is no need for refrigeration for the '*self stable*' products with pH ≤ 5.2 and a_w ≤ 0.95 (**Group C**) .Products can also be classified within this group if either the a_w <0.91 or the pH< 5.0. Such as the fermented meat products as **'aeros mini'**, **'aeros sliced'** (Table 5a, 5b, Table 11, Table 15) and the 'traditional sausages No 1' (in both sizes) (Table 4a, Table 4b, Table 10, Table 15) .

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