Blueprints in different milk systems. R Rubino[1], M Pizzillo[1], G Masoero[2], [1]CRA-ZOE, Bella, PZ, Italy, [2]Accademia di Agricoltura, Torino, Italy.

Blueprint means a construct peculiar to a product, i.e. the aroma of industrial product like a coffee, as well as the core of an apical natural product, like a truffle. For the "cappuccino" milk, the blueprint is the foaming property. This study aimed to assess the most discriminant Fatty Acids (FAs) and VOC compounds which can be retained as blueprints in the profile of different farming types. A total of 106 dairy farms in South Italy were surveyed for FA and VOC composition. The farms belonged to four main different dairy systems: 1-SCI: Silages Concentrate Intensive); 2-HCI (Hay Concentrate Intensive); 3-HCL (Hay Concentrate Low); 4-PCZ (Pasture Concentrate Zero with Podolic cows). The multivariate PLS statistical analyses enhanced a moderate overlapping of compounds between the types, inversely measured by the R2 of the model. From the whole profile of 55 FAs and their ratios, a subset of 11 FAs was the most distinctive for the 4 types and raised R2 at 0.65; more precisely in the sense of variation increasing from 1 (most intensive) to 4 (less intensive), five FAs were positive, namely in decreasing order : C17:1; C14:0iso; C17:0anteiso; C17:0 (margaric); CLA, and six were negative, namely in decreasing order: C14:1cis (miristoleic); C16:0 (palmitic); ω6; C16:0iso; C15:0iso (Pentadecanoic); C21:0 (heneicosylic). Besides the well known CLA we can put attention to two FA: 1) the C14:0iso (12-methyl tetradecanoic acid (12-MTA) firstly signaled by Borreani et al. (2003) as particularly low when maize silage was fed; this compound has recently received attention because involved in mouse models of corneal injury; 2) the C15:0iso , because cytotoxicity anticarcinogenic of these Odds Chain Branched FA was comparable to that of CLA a generally lesser component of milk fat which has received much greater attention as a potential anti-cancer agent. Among the VOC the Hydrocharbons fraction gave the higher R2 (0.50) the most positive being toluene and undecane. It was concluded that blueprints of milk produced in less intensive or most intensive farms may exist, and iso-acids and Hydrocharbons are important keys.

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