

Fatty Acid and Dimethylacetal Composition of the sn-1 and sn-2 Position of Phosphatidylcholine and Phosphatidylethanolamine as Affected by Diet in Rat Muscle.

Pérez-Palacios, T.; Antequera, T.; Muriel, E.; Ruiz, J.

Tecnología de los Alimentos. Facultad de Veterinaria, Universidad de Extremadura, Cáceres, España.

The fatty acid (FA) and dimethylacetal (DMA) profile of the sn-1 and sn-2 position in phospholipids (PL) from animal muscle may have several important consequences, both *in vivo* and in the derived foodstuffs. In animal tissues, phosphatidylcholine (PC) and phosphatidylethanolamine (PE) are the most abundant PL. However, the influence of dietary FA composition on the FA and DMA distribution in the sn-1 and sn-2 position of different muscle PL classes remains unstudied. The aim of this study was to investigate the effect of feeding diets enriched in different oils on the FA and DMA composition of the sn-1 and sn-2 position of PC and PE from *Longissimus dorsi* of rats. Eighteen male Wistar rats were fed either a control diet (C), an olive oil (OO) enriched diet or a sunflower oil (SO) enriched diet. Results showed that the FA composition of PC reflects consumed FA better than that of PE, which could be related to the abundance and situation of PC in membranes. In the group fed a OO enriched diet, oleic acid (C18:1 n-9) content significantly increased in both positions of PC, and in the group fed a SO enriched diet, the proportion of arachidonic acid (C20:4 n-6) was the highest in the sn-1 position of PC. Contrarily, values of oleic acid (c18:1 n-9) in the sn-1 position of PE were lower in group OO than in groups C and SO. The DMA content was affected by diet only in PE. Proportions of octadecenalDMAs (18:1 n-9 DMA, 18:1 n-7 DMA) and total DMA were higher in rats fed an OO enriched diet than in C and SO rats. In both positions of PC and PE, the proportion of docosahexaenoic acid (C22:6 n-3) increased in the OO group. As a consequence, the level of total n-3 FA was higher and the ratio n-6/n-3 was lower in group OO than in groups C and SO.