Galactolipids and galactolipases

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Galactolipids, mainly monogalactosyl diglycerides (MGDG) and digalactosyl diglycerides (DGDG), are the main lipids found in plant membranes and as such, they are the main lipids present at the surface of the earth. Although it was estimated they account for about 80 % of the fatty acid stocks, galactolipid digestion by lipolytic enzymes was studied only by a few laboratories and until recently, it was even thought that they were not digested in humans. Food emulsions stabilized by galactolipids instead of lecithin are today in development for slowing down the rate of fat digestion and triggering satiety mechanisms in the distal part of the small intestine (ileal brake). These studies often ignore however the existence of galactolipases in the human pancreatic secretion. The aim of this presentation is to summarize the current knowledge on galactolipid digestion in humans, with a special focus on pancreatic lipase-related protein 2 (PLRP2). Since 1996 and the discovery that PLRP2 could hydrolyze MGDG and DGDG [1], many data have been obtained on the origin of this enzyme [2-5], on its substrate specificity [6-7], on its 3D structure [8], and specific galactolipase assays were established [9-10].

References:

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