

Odd chain fatty acids and odd chain phenolic lipids (alkylresorcinols): Essential for diet?

Kelly Dornan¹, Aynur Gunenc¹, B. Dave Oomah², and Farah Hosseinian³

¹Affiliation not available

²(Retired), Formerly with the National Bioproducts and Bioprocesses Program, Pacific Agri-Food Research Centre,

³Carleton University

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Abstract

Odd chain fatty acids (C15:0 and C17:0) from dairy fat as well as odd chain phenolic lipids (alkylresorcinols) from whole grain are commonly reviewed as candidate biomarkers for dietary analysis and their ingestion are inversely related to chronic disease risks. Therefore, low levels of dietary intake of these odd chain molecules may be related to higher risk of physiological states that cause chronic diseases or mortality. It is a prerequisite to examine and understand their main role in beneficial health effects in disease prevention. We propose odd chain fatty acids (OC-FA) and most importantly odd chain phenolic lipids (OC-PL) as potential essential dietary compounds since they play key roles in physiological mechanisms. This review evaluates potential roles of OC-FA and OC-PL in mitigating chronic diseases in vitro and in vivo studies to support our hypothesis for odd chain molecules as essential dietary lipids. Further studies are needed to investigate the relationship between reduced intake of OC-FA and OC-PL containing foods and susceptibilities to chronic diseases.

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