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PART 1 SATURATED FATS IN FOODS: FUNCTIONAL AND NUTRITIONAL ASPECTS

Saturated fats in foods and strategies for their replacement: an introduction
G Talbot, The Fat Consultant, UK
- Background to the need to reduce saturated fats
- Chemistry and structure of fatty acids and triglycerides
- Saturated fat and fatty acid consumption in the EU, US and UK
- Opposing views on effects of saturates on cardiovascular disease
- Replacements for saturates
- Areas not covered by specific chapters in this book
- Future trends
- Sources of further information and advice
- References

The functional attributes that fats bring to food
E H A de Hoog, R M A J Ruijschop, S P Pyett and P M T de Kok, NIZO Food Research B. V., The Netherlands
- Introduction
- Perception of fat
- Role of fat in the texture of foods
- Engineering fat to tailor appetite
- Consequences for strategies to reduce fat
- Future trends
- Sources of further information and advice
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Sources of saturated and other dietary fats
G Talbot, The Fat Consultant, UK
- Introduction
- Vegetable oils rich in saturated fats
- Mammalian milk fats
- Animal carcass fats
- Hydrogenated fats
- The trans effect
- Future trends
- Sources of further information and advice
- References

Health aspects of saturated fatty acids
J I Pedersen, University of Oslo and B Kirkhus, Nofima - Food, Fisheries and Aquacultural Research, Norway
- Introduction
- Atherosclerosis as the basis for cardiovascular diseases (CVD)
- Effects of individual fatty acids on plasma total cholesterol, low density lipoprotein (LDL)-cholesterol, HDL-cholesterol and triglycerides (VLDL)
- Effects of fatty acids on other biomarkers related to coronary heart disease (CHD)
- Evidence linking LDL-cholesterol to the development of atherosclerosis and CHD
- Effects of saturated fatty acids (SFA) on disease states related to CVD
- Cancer
- Dietary recommendations related to SFA
- Trends in consumption of SFA as related to trends in mortality and incidence of CVD
- Conclusion
- References

**Chronic disease risk associated with different dietary saturated fatty acids**

*D I Givens and K E Kliem, University of Reading, UK*

- Introduction
- Key dietary saturated fatty acids
- Chronic disease risk differences between different saturated fatty acids
- The 'stearic acid' effect – chronic disease risk effects of stearic acid
- Future trends
- Sources of further information and advice
- References

**Nutritional characteristics of palm oil**

*P Khosla, Wayne State University, USA and K Sundram, Malaysian Palm Oil Council, Malaysia*

- Introduction
- Serum cholesterol, lipoproteins and dietary fatty acids
- Effects of palm oil olein as part of a low-fat healthy diet
- Effects of dietary fatty acids on LDL-C/HDL-C ratios
- Palm oil minor components
- Conclusion and future trends
- Sources of further information and advice
- References

**PART 2 FOOD REFORMULATION TO REDUCE SATURATED FATS**

**Reducing saturated fat using emulsion technology**

*W G Morley, Leatherhead Food Research, UK*

- Introduction
- Fat composition
- Emulsion droplets
- Phase structuring and emulsions
- Fat replacers
- Processing
- Applications
- Future trends
- Sources of further information and advice
- References

**Diacylglycerol oils: nutritional aspects and applications in foods**

*O M Lai, Universiti Putra Malaysia, Malaysia and S-K Lo, Sime Darby Research Sdn. Bhd., Malaysia*

- Introduction
- Digestion, absorption and metabolism of DAG
- Production process patents
- Product application patents
- Regulatory status
- Future trends
- Source of further information
- References

**Saturated fat reduction in milk and dairy products**

*E S Komorowski, Dairy UK, UK*
- Introduction
- Milk
- Cheese
- Butter and spreadable fats
- Reducing the saturated content of milk fat through feed
- Future trends
- Sources of further information and advice
- References

Saturated fat reduction in butchered meat
K R Matthews, Agriculture and Horticulture Development Board, UK
- Introduction
- Animal production
- Preparation of cuts
- In the kitchen and on the plate
- Effect on meat quality
- Future trends
- Conclusions
- Sources of further information and advice
- References

Saturated fat reduction in processed meat products
S Barbut, University of Guelph, Canada
- Introduction
- Ground meat products (burgers)
- Sausages – coarse ground (e.g. cooked salami, breakfast sausage)
- Sausages – emulsion type products (e.g. bologna, frankfurters)
- Sausages – dry fermented (e.g. summer sausage, dry salami)
- Prepared and coated meat products (e.g. nuggets, pies)
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- Sources of further information
- References

Altering animal diet to reduce saturated fat in meat and milk
A P Moloney, Teagasc, Ireland
- Introduction
- The fat content of meat and milk
- Dietary effects on the fat content and fatty acid composition of meat
- Dietary effects on the fat content and fatty acid composition of milk
- Influence of ‘additives’ on saturated fatty acids in meat and milk
- Future trends
- Sources of further information and advice
- References

Reducing saturated fat in savoury snacks and fried foods
A M Kita, Wrocław University of Environmental and Life Sciences, Poland
- Introduction
- Frying oils
- Effects of frying oils and frying parameters on the quality of fried foods
- Innovating technologies in frying and their impact in the quality of fried foods
- Changes in savoury snacks
- Future trends
- Sources of further information and advice
- References
Saturated fat reduction in biscuits
G Atkinson, AarhusKarlshamn UK Ltd, UK
- Introduction
- Types of fat used in biscuits
- The technology of biscuits
- Techniques for saturates reduction
- Future trends
- Sources of further information and advice
- References

Saturated fat reduction in pastry
B de Cindio and F R Lupi, University of Calabria, Italy
- Introduction
- The dough/fat matching process in pastry
- Process rheological modeling
- Margarine and shortenings for reducing saturated fats
- Conclusions
- Future trends
- Sources of further information and advice
- Acknowledgements
- References

Reducing saturated fat in chocolate, compound coatings and filled confectionery products
G Talbot, The Fat Consultant, UK
- Introduction
- Chocolate
- Compound coatings
- Filled confectionery products
- Future trends
- Sources of further information and advice
- References

Saturated fat reduction in ice cream
J Underdown and P J Quail, Unilever R&D and K W Smith, Fat Science Consulting Ltd., UK
- Introduction
- Basic components and processing of ice cream
- Sources of fat and saturated fat in ice cream products
- The function of fat in ice cream
- Properties of fats used in current ice cream products
- Challenges associated with saturated fatty acid (SFA) reduction
- Future trends
- References

Saturated fat reduction in sauces
P Smith, Cargill R&D Centre Europe, Belgium
- Introduction
- Sensory properties of sauces
- Product lifetime
- Conclusions
- Future trends
- Sources of further information and advice
- References