THE ROLE OF FATS IN FOOD

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THE BIG FAT DEBATE
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MELTING AND CRYSTALLISATION

• Chocolate
  • Hard at ambient temperature
  • Molten at mouth temperature
  • Polymorphic fats – need to be ‘tempered’
• Confectionery fillings
  • Steep melting – cool melting
• Margarines and Spreads
  • Fast crystallisation to allow solidification after depositing
• Ice cream
  • >50% solid fat at 0°C
  • Molten at mouth temperature
  • Ageing/hardening process dependent on crystallisation of fat phase
TEXTURE

• Shortness in biscuits and pastry
  • The more fat present the ‘shorter’ the texture
  • Fat coats flour and inhibits gluten formation

• Emulsions
  • Fats give creamy texture to mayonnaise, ice cream etc
  • Oil-in-water emulsions
    • Butter
    • Margarines and spreads
  • Water-in-oil emulsions
    • Milk, cream
    • Mayonnaise
    • Salad dressings
AERATION

• Whipped creams (dairy and non-dairy)
  • Fat crystallises around the air bubbles
• Cake batters
  • Fat crystallises around the air bubbles protecting them during early stages of baking
• Bread doughs
  • High melting fats hold the risen structure in place during early stages of baking
HEAT TRANSFER AND LUBRICATION

• Frying
  • Frying oils act as a heat transfer medium to the foods being fried
  • Controllable in terms of temperature to get different fried effects, colour, texture etc

• Lubrication
  • Machine oils and bread dough dividers
    • Vegetable alternative to mineral oils
  • Mouth lubrication
    • High fat foods have a creaminess and lubrication when consumed that makes them easier to digest
APPEARANCE AND FLAVOUR

• Chocolate and confectionery coatings
  • Imparts gloss
  • Can also affect or inhibit bloom formation
• Fat-soluble flavours
  • Mint, orange oil, lemon oil
• Infused oils
  • Garlic infused olive oil
  • Chilli infused olive oil
• Flavours produced during frying, baking
• Off-flavours due to oxidation, hydrolysis