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DEPARTMENT OF FOOD TECHNOLOGY

23FTT204- BIOCHEMISTRY & NUTRITION

UNIT 2 -TOPIC 4

Shortening power :

Fats perform a shortening function in the dough to deliver desirable textural properties in a food product. Shortening acquires its name from the truth that fat by its extremely nature coats the protein molecules in flour, making it hard for them to join and make a stretchy material called gluten. Gluten strands that do develop are "shortened". Otherwise, more gluten could be developed and successively, lead to undesirable hard or chewy cookie texture. Subsequently, for various texture prerequisites, diverse shortenings will be chosen.

The level of shortening developed by a fat or oil in a given product relies on the surface area of the flour particles covered with the aid of the fat. It is usually considered that unsaturated fatty acids have more prominent covering power compared to saturated fatty acids. Thereby, variations in the shortening power of different fats probably clarified by their level of unsaturation.

Smoke Point:

The smoke point, also referred to as the burning point, is the temperature at which an oil or fat begins to produce a continuous bluish smoke that becomes clearly visible, dependent upon specific and defined conditions. Smoke point values can vary greatly, depending on factors such as the volume of oil utilized, the size of the container, the presence of air currents, the type and source of light as well as the quality of the oil and its acidity content, otherwise known as free fatty acid (FFA) content. The more FFA an oil contains, the quicker it will break down and start smoking. The lower the value of FFA, the higher the smoke point. However, the FFA content typically represents less than 1% of the total oil and consequently renders smoke point a poor indicator of the capacity of a fat or oil to withstand heat.

Temperature

The smoke point of an oil correlates with its level of refinement. Many cooking oils have smoke points above standard home cooking temperatures:

- Pan frying (sauté) on stove top heat: 120 °C (248 °F)

- Deep frying: 160–180 °C (320–356 °F)
- Oven baking: Average of 180 °C (356 °F)

Considerably above the temperature of the smoke point is the flash point, the point at which the vapours from the oil can ignite in air, given an ignition source.