DETERMINATION OF FREE FATTY ACID (FFA)

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INTRODUCTION

The FFA figure is usually calculated as oleic acid by dividing the acid value by 2. With most oils the acidity begins to be noticeable to the palate when the FFA calculated as oleic acid is about 0.5-1.5%.

When the FFA cannot be estimated in terms of oleic acid, it can be calculated from the saponification value.

CALCULATION

1. Determination of Free Fatty Acid from Acid Value

$$\text{FFA (\%)} = \text{acid value} \times \frac{\text{mol. wt. of oleic acid}}{\text{mol. wt. of KOH}} \times \frac{100}{1000}$$

$$= \text{acid value} \times \frac{282.27}{56.11} \times \frac{1}{10}$$

$$= \text{acid value} \times \frac{1}{2}$$

2. Determination of Free Fatty Acid from Acid Value And Saponification Value Expressed as mg Number per 100 g Meat

$$\text{FFA (mg/100 g)} = \frac{\text{acid value} \times \text{total lipid}}{\text{saponification value}} \times 100$$

* N.B. 2. Personal communication from Dr. Tsukuda.

REFERENCE

Pearson, D. (1976) In: The chemical analysis of foods (7th Ed.) Churchill Livingstone:493.