

DETERMINATION ACIDITY PORK LARD DURING PROCESSING

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Abstract

Acidity free is conferred by the existence in that environment of free acids, so the carboxyl group. Fatty acids from fat tissue lipid composition in the diet are especially for pigs or by hydrolysis.

Fat hydrolysis decomposes into glycerol and fatty acids. Fatty acids in the free state and thereby increase the acidity index can be assessed by determining the physico-chemical aacestui indicator.

Key words: linoleic acid, linolenic acid, arachidonic acid, pirazina, triglycerides, phospholipids

INTRODUCTION

Fatty acids are components of complex lipid structure of cell membranes and are major components of fat deposit in the form of triglycerides. Some fatty acids (araidronic acid and acid derived from - linolenic acid) is material to produce eicosanoide eicosapentanoic home, they are the prostaglandins, thromboxanes and leukotriene.

Of the total fatty acids, the quantitatively predominant saturated, followed by the monounsaturated, small quantities being found in the polyunsaturated fatty acids, namely linoleic, linolenic and arachidonic. The first two are usually the products of plant nutrients on the latter in animal products.

Total lipids from fatty tissues is 99.7% and are formed mostly of triglycerides (98,3-99,2%), phospholipids (0,33-1,40%) and cholesterol (0,1-0 , 11%).

The heat treatment of foods containing fat such changes occurs in terms of appearance, taste, smell, nutritional value and toxicity. Both lipids can be degraded thermally saturated and unsaturated ones, such degradation is particularly obvious when roasting food.

In frying in oil or lard in food, especially the repeated roasting forms saturated and unsaturated aldehydes, ketones, hydrocarbons, lactones, alcohols, acids and esters, part of the volatile component. Longer form: nepolimerics polar compounds of moderate volatility, and fatty acids dimers polymers and glycerides dimer and polymer; triacilgliceroli fatty acids by hydrolysis.

- Changes caused by foods that are subjected to roasting operation:
- ❖ removal of water in oil, which produces an effect distillation with water vapor stripping of volatile substances produced in the oil fry food;
 - ❖ formation of volatile substances in the product fry (eg. Sulfur compounds or pirazina) or by interaction between the product and oil;
 - ❖ food may issue its own fat for roasting dip.

The changes that you suffer from frying oil or fat are influenced by:

- ❖ temperature;
- ❖ during roasting;
- ❖ existence of metal;
- ❖ the type of toaster.

The roasting is intended to preserve the best time to use the oil (fat) by minimizing thermal degradation and to this end the following needs:

- ❖ choice of oil quality and good stability;
- ❖ use of appropriate equipment for roasting;
- ❖ choosing a roasting temperatures as low as possible, but nevertheless lead to a fried food quality;
- ❖ oil filter to remove particles of food;
- ❖ replace oil as needed;
- ❖ using a heat-resistant antioxidant

MATERIAL AND METHODS

As this material was made of pig lard trade of quality I packed in plastic boxes of 500g, for which determinations were made on evaluating the quality of fat in terms of state of freshness, before processing and after processing, according to the protocol work

Determination of acidity pork lard samples was done in the following conditions:

- ❖ commercial pig lard to cal.I - before roasting-blank-M
- ❖ lard roasting various meats:
 - P1 - lard to fry the pork neck;
 - P3 - the fat has fried chicken;
 - P5 - the fat was fried breaded chicken breast;
- ❖ a second lard after roasting:
 - P2 - lard to fry the pork neck twice;
 - P3lard to fry the chicken twice;
 - P6 - lard in which two or breaded fried chicken breast;

Roast was performed in an Fryers from 145 to 155 ° C on both sides of the cut of meat unsalted and unseasoned. After each frying, lard was allowed to cool and samples were taken for analysis.

It was intended influence of the roasting is successful - in two stages for different types of meat after each roasting taking fat samples to determine acidity.

Were harvested 1% of packages taken at random, but not less than two and not more than five. Processed food in Seoul is open at random 5% of packages in the same batch, but no more than three packages, which are harvested from all walks of samples using a probe. Samples are available in a clean, dry glass jars, which are sealed, be sealed, labeled and sent to the laboratory.

Method of determination. Free acidity, directly titrated, is conferred by the existence in that environment of free acids, so the carboxyl group (-COOH). Hydrolysis, fats are broken down into glycerol and fatty acids. Able free fatty acids increase the acidity index, so that the process is assessed by determining the hydrolytic acidity.

Principle of the method: is the neutralization of free acidity of 0.1 N sodium hydroxide solution in presence of phenolphthalein as indicator. In fat, acidity is expressed in terms of g oleic acid, the amount of sodium hydroxide 0.1 N expressed in ml needed to neutralize the acidity of 100 g fat.

Reagents needed: sodium hydroxide, 0.1 N solution, phenolphthalein, 2% alcohol solution, alcohol-ether mixture 1:1 neutralized in the presence of phenolphthalein with sodium hydroxide.

Procedure: In an Erlenmeyer flask taking 1-2 g fat and moderate heat (about 50 ° C) before melting. Add 20-25 ml alcohol-ether mixture and a few drops of phenolphthalein, shake, then titrate with 0.1 N sodium hydroxide while stirring continuously, until the appearance of pink color should persist 30 seconds.

Calculation results: use the following formula:

$$\text{g. acid oleic, \%} = \frac{0,0282 \times V}{m} \times 100$$

where:

0.0282 is the amount of oleic acid, in g, corresponding to 1 ml 0.1 N sodium hydroxide solution;

V - volume sodium hydroxide solution 0.1 N in ml used in titration;

m - mass of sample taken for determination.

For pork lard in g oleic acid must be:

- the highest quality pork lard acidity max. is 0.35%;
- the quality of pork lard I - acidity max. is 0.5%;
- the quality of pork lard II - a - acidity max. is 1%;
- processed food in Seoul - the acidity is max. 0.8%.

RESULTS AND DISCUSSION

Free acidity - directly titrated - is afforded by the existence in that environment of free acids, so the carboxyl group. Hydrolysis, fats are broken down into glycerol and fatty acids. Able free fatty acids increase the acidity index, so that the process is assessed by determining the hydrolytic acidity

For all the determination it took 1g of fat each.

- index of acidity - Take the fat before roasting – Blank-M

VNaOH - 0,3 ml

IA P_m = (0,3 x 0,0282 x 100): 1 = 0,846 % oleic acid

- acidity index for the lard to fry a date:

- P1 - Pork neck:

VNaOH = 0,4 ml

IA P₁ = (0,4 x 0,0282 x 100): 1 = 1,128 % oleic acid

- P3-chicken breast:

VNaOH = 0,4 ml

IA P₃ = (0,4 x 0,0282 x 100): 1 = 1,128% oleic acid

- P5 - breaded chicken breast:

VNaOH = 0,3 ml

IA P₅ = (0,3 x 0,0282 x 100): 1 = 0,846 % oleic acid 68

- acidity index for lard to fry it twice:

- P2 - Pork neck;

VNaOH = 0,4 ml

IA P₂ = (0,4 x 0,0282 x 100): 1 = 1,128 % oleic acid

- P 4 - chicken breast;

VNaOH = 0,5 ml

IA P₄ = (0,5 x 0,0282 x 100): 1 = 1,43 % oleic acid

- P 6 - breaded chicken breast;

VNaOH = 0,5 ml

IA P₆ = (0,5 x 0,0282 x 100): 1 = 1,41 % oleic acid

Table1

Tabular values of acidity expressed as% oleic

Product type fried	Fat before roasting	Fat after frying	II lard after roasting
Pork neck	0,846	1,128	1,128
Chiken breast		1,128	1,41
Breaded chiken breast		0,846	1,41

For first quality pork lard is permissible for a maximum acidity of 0.5% and in our case the value found for 0.8% which leads us to the idea that being fat is about quality II or acidity value exceeds higher threshold for the quality.

CONCLUSIONS

In the study the following conclusions

- ❖ cream results by first roasting the pork and chicken meat have acidity index values exceeding the limit allowed by 0.34%;
- ❖ In the breast breaded frying is observed that after a roasting lard does not have a degree of degradation, which is probably due to low water content of samples from roasting type pane;
- ❖ acid index value remains the same after the second roasting for the pigment, but in other cases greatly increases.

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