

PHYSICOCHEMICAL CHANGES IN EDIBLE OILS AND FRIED DUCK MEAT DEPENDING ON FRY NUMBER

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I. OBJECTIVES

The objective was to determine the effects of different oils and fry numbers on the quality of edible oils and fried duck meat.

II. MATERIALS AND METHODS

Sunflower oil, canola oil, corn oil, and soybean oil were used as edible oils in this study. Duck carcasses were purchased from a commercial abattoir at 1 d postmortem. Thirty duck carcasses were deep-fried for each oil. Whole duck carcasses were divided into subdivision meat: wings, breasts, legs, and body. Duck meats were cooked at 170°C for 10 min using an electric deep fry machine. After frying, oils were removed from the deep fry machine and then frozen at -72°C. According to the frying number (0, 5, 10, 15, 20, 25, 30), the edible oils from the deep fryer were used as experimental samples. To investigate the degree of lipid oxidation during frying, acid value and color of samples were examined. Measuring of acid value was done following the protocol of the Ministry of Food and Drug Safety, Korea. Color was measured with a Minolta Chroma Meter.

III. RESULTS

The acid value of sunflower oil was lowest (2.94) and of soybean oil was highest (4.49) at 30 times. The Ministry of Food and Drug Safety regulations permit edible oils to have an acid value of <3.0 mg KOH/g. Each oil exceeded the regulation permit at different frying times: canola oil at 30 times, corn oil at 25 times, and soybean oil at 20 times. The lightness was highest in the sunflower oil and lowest in the soybean oil. The yellowness was highest in the soybean oil and lowest in the sunflower oil.

IV. CONCLUSION

Taken together, sunflower oil showed the most suitable properties for fried duck meat. Further studies are needed to determine the effects of different edible oils on fried duck meat quality.

Keywords: acid value, deep frying, duck meat, lipid oxidation