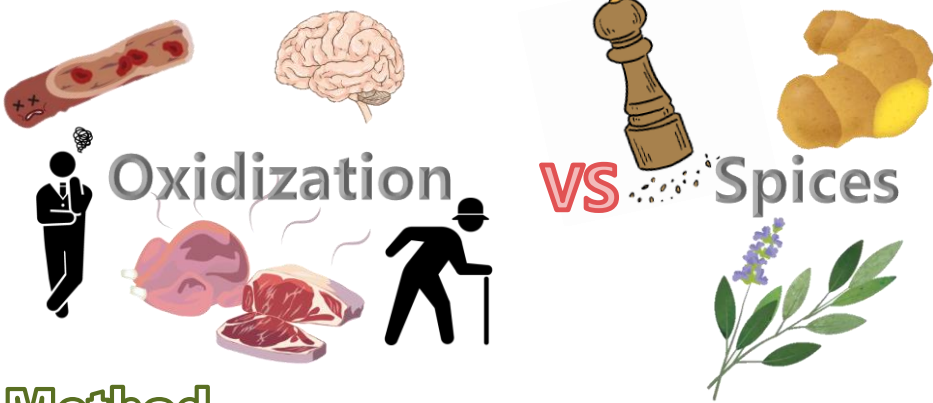# Antioxidative Properties of Spices

Tokyo Metropolitan Koishikawa Secondary School
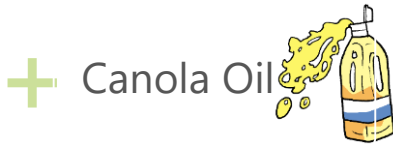
Background & Objectives

Oxidization VS Spices

Method

Ingredients

- Sage
- Ginger
- Black Pepper

+ Canola Oil

Comparison

5.0g

0,25g

180℃

Measuring POV & AV

Peroxide Value (POV)
a parameter specifying the content of oxygen as peroxide, especially hydroperoxides in a substance.

Acid Value (AV)
parameter in the specification of fats and oils. It is defined as the weight of KOH in mg needed to neutralize the organic acids present in 1g of fat and it is a measure of the free fatty acids (FFA) present in the fat or oil.
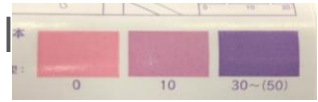

Results & Discussion

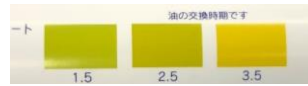### Peroxide Value of Canola Oil (without heat treatment)

(days)	0	14	28
None	0	0	0
Sage	0	10	30-50
Ginger	0	0	10
Black Pepper	0	10	0

🔥 Peroxide Value of Canola Oil (Heated at 180℃)

(days)	0	1/8	7	21	28
None (without heat treatment)	0		10-30	0	30
None (with heat treatment)	0	10	10-30	0	10
Sage	0	0	0	0	10
Ginger	0	0	0	0	0
Black Pepper	0	0	10-30	0	10

🔥 Acid Value of Canola Oil (Heated at 180℃)

(days)	0	1/8	7	21	28
None (without heat treatment)					
None (with heat treatment)					
Sage		2.5	1.5	2.5	
Ginger		2.5	1.5		
Black Pepper					