

## EVALUATION OF ANTIOXIDATIVE EFFICIENCY OF CHINESE MAHOGANY (*TOONA SINENSIS ROEMOR*) IN FRESH CHICKEN SAUSAGES DURING STORAGE AT 4°C

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### Introduction

During storage, a rancid odour easily develops in fresh chicken sausages due to a higher amount of unsaturated fatty acid, which results also in rejection by consumers. For this reason, antioxidants such as BHA, BHT or natural herbs were added to sausages or meat products (Mielnik *et al.*, 2003; Nussue *et al.*, 2003). Chinese mahogany (*Toona sinensis Roemor*) is a traditional herb used in meal in Taiwan due to its special flavour and health properties. Recently, several studies mentioned that higher anti-oxidative ability existed in the shoot (leaves) of Chinese mahogany (Park *et al.*, 1996; Hsieh *et al.*, 2004). The objective of this study was to estimate the antioxidative efficiency of Chinese mahogany (*Toona sinensis Roemor*) in fresh chicken sausages stored at 4°C for 14 days.

### Materials and Methods

Fresh shoot of Chinese mahogany (*Toona sinensis Roemor*) was obtained from a local herb store and dried at 60-65°C for 8hr then blended. Breast meat and skin of broilers were purchased from a local poultry plant. Dry blended shoot of Chinese mahogany (*Toona sinensis Roemor*) were divided into 3 groups (T5=500ppm; T10=1000ppm; T15=1500ppm) by phenol compounds then mixed into raw meat and stuffed into pork casing. All products were packed with film and carton then stored at 4°C for 14 days. In this study, pH value, TBARS, and sensory analysis were determined to evaluate the anti-oxidative efficiency of Chinese mahogany (*Toona sinensis Roemor*) in fresh chicken sausage during storage at 4°C. Data was analyzed using the SAS software (SAS, 2003).

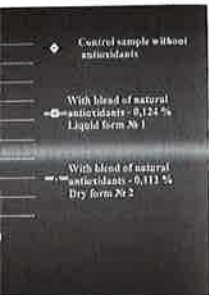
### Results and Discussion

The phenol compounds of the fresh and dried style were 55mg/g and 395.3 mg/g, respectively. The dry style Chinese mahogany was used in this experiment due to its higher phenol compound content and convenience. Higher pH values were obtained in the fresh chicken sausages with different amounts of Chinese mahogany when compared with that of the control. During storage, with increasing time the pH value of all fresh chicken sausages decreased but those with Chinese mahogany still had a higher pH value than the control (Figure 1). The TBARS value of the control had significantly higher value when compared with that of fresh chicken sausage with different amounts of Chinese mahogany during storage for 14 days (Figure 2). This result also indicated that Chinese mahogany actually had the better anti-oxidative effect in poultry meat products. The sensory score of fresh chicken sausage with different concentrations of Chinese mahogany at the initial time was showed in Table 1. The data analyses indicated that addition of Chinese mahogany did not effect the colour and aroma of fresh chicken sausages. Although a slight herb odour existed in fresh chicken sausage when the amount of Chinese mahogany was 500 ppm and above, the best flavour of fresh chicken sausages with 500 ppm was still evaluated by the panelists in this study. In addition, most of the panelists thought overall acceptance of these products were depended on the flavour and colour. Thus, in this study the best overall acceptance was the fresh chicken sausage with 500 ppm Chinese mahogany.

### Conclusions

In conclusion, Chinese mahogany held higher total phenol compounds and also showed that a higher anti oxidative efficiency with amount when this herb was applied in fresh chicken sausage. According to the results of the sensory panel, the optimum amount of Chinese mahogany in fresh chicken sausage should not be above 500 ppm.

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materials

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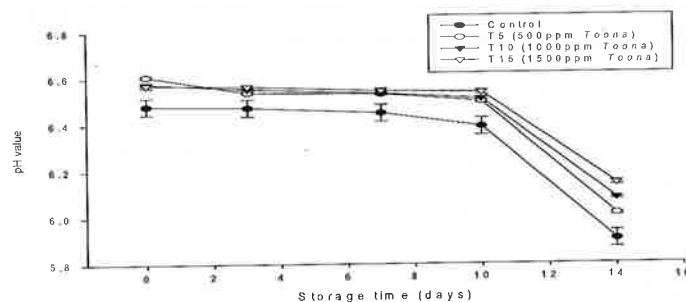
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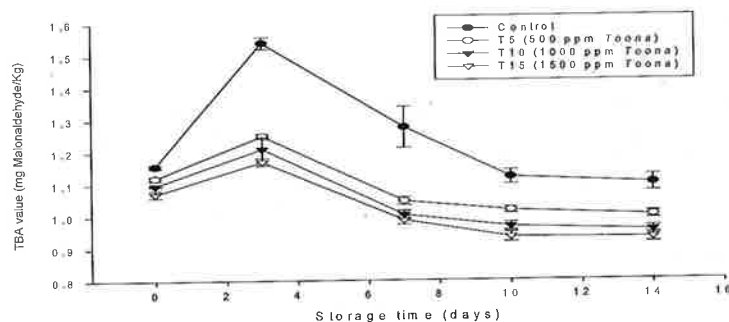
oxidative changes in "Choriso"

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J. Food. Sci.,UZPI, 18 (Spec.

processing of dry-cured ham,



**Figure 1:** The change of pH value of fresh chicken sausage with different concentrations of Chinese mahogany (*Toona sinensis Roemor*) during storage at 4°C.



**Figure 2:** The change of TBAR value of fresh chicken sausage with different concentrations of Chinese mahogany (*Toona sinensis Roemor*) during storage at 4°C.

**Table 1:** Sensory score of fresh chicken sausage with different concentrations of Chinese mahogany (*Toona sinensis Roemor*) at the initial during storage at 4°C.

Item \ Group <sup>1</sup>	C	T5	T10	T15
Color	4.42±0.23 <sup>ab</sup>	4.75±0.30 <sup>a</sup>	4.50±0.15 <sup>ab</sup>	4.33±0.14 <sup>b</sup>
Aroma	4.33±0.26 <sup>a</sup>	4.67±0.40 <sup>a</sup>	4.58±0.26 <sup>a</sup>	4.50±0.29 <sup>a</sup>
Odour	1.92±0.29 <sup>b</sup>	2.08±0.29 <sup>ab</sup>	2.58±0.34 <sup>a</sup>	2.58±0.54 <sup>a</sup>
Flavour	4.12±0.31 <sup>b</sup>	5.08±0.26 <sup>a</sup>	4.83±0.30 <sup>a</sup>	5.00±0.25 <sup>a</sup>
Overall Acceptance	4.83±0.24 <sup>b</sup>	5.25±0.25 <sup>a</sup>	5.00±0.21 <sup>ab</sup>	5.08±0.19 <sup>ab</sup>

mean ± S.D., n=12.<sup>1</sup>C=without any spices ; T5=500ppm ; T10=1000ppm ; T15=1500ppm.

<sup>a, b</sup> : Means within the same row without the same superscript are significantly different (p < 0.05).

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