EFFECT OF ADDITION OF *PLEUROTUS OSTREATUS* POWDER IN QUALITY CHARACTERISTICS OF PORK PATTIES

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I. INTRODUCTION

In the 21st century, the most important thing for the consumer and a critical issue for the meat industry is the quality. It has reported that several factors affect the shelf life and quality of meat, such as atmospheric oxygen (O_2), moisture and one of the most important, microorganisms [1,2]. Thus, the research has focused on the addition of different natural ingredients. Nevertheless, consumers prefer products that have a natural origin, but at the same time can contribute some benefit to their health. That's why the edible mushrooms have been taken a lot of interest lately [3]. It is well known that they have so many properties that can give to human health, food quality and more. Therefore, the objective of this work was evaluated the effect of the quality characteristics about the inclusion of *Pleurotus ostreatus* powder in pork patties.

II. MATERIALS AND METHODS

Pork meat (M. semimembranosus, 24 h postmortem) homogenized with fat (10%), salt (1.5%) and water (5%), for pork patties elaboration (90 g each). Pork patties were defined as follow: untreated meat (control), 2 and 5% of *P. ostreatus* powder (P2 and P5). For cooked samples, patties were grill until 71°C of internal temperature reached. Patties (raw and cooked) were placed in polypropylene trays and wrapped with polyvinyl chloride film (17,400 cm^3 O_2/m^2/24 h at 23 °C) and maintained in refrigerated storage (2 °C in the dark for 0 and 9 d). pH evaluation, color measurement, and Thiobarbituric acid reactive substances were performed according to Torrescano et al. [4], CIE [5], and Pfalzgraf [6] respectively. Data subjected to ANOVA and a Tukey comparison test ($P<0.05$).

III. RESULTS AND DISCUSSION

Among all edible mushrooms, Pleurotus species is characterized by possessing great potential as an additive for pharmaceutical or food industry. This mushroom has been employed as an ingredient to enhance the sensorial properties and to reduce the lipid oxidation, in various types of meat products including chicken and beef patties [7,8]. The results obtained indicate that pH and color values of raw and cooked patties decreased during storage time (Table 1), while TBARS values were increased mainly for the control ($P<0.05$). At day 9 of storage, the results showed that in raw and cooked pork patties treated with 5% of mushroom powder, the pH values considered as reasonable for all the samples (>5.5). Also, the inclusion of 5% of mushroom in raw and cooked patties increased the red color (a* value >7 for both) and reduced the TBARS values (>50% for both) when compared with the control ($P<0.05$).

Table 1. Effect of *P. ostreatus* addition and storage time on meat quality parameters of pork patties.

Item	Sample-Day	Treatments		
		Control	P2	P5
pH	Raw-0	5.82±0.05^{Ba}	5.81±0.04^{bA}	5.74±0.06^{bA}
	Raw-9	5.75±0.06^{aB}	5.70±0.04^{aB}	5.58±0.06^{aA}
	Cooked-0	6.07±0.04^{bB}	5.90±0.05^{bA}	5.95±0.04^{bA}
	Cooked-9	5.87±0.04^{Ab}	5.75±0.06^{aA}	5.76±0.05^{aA}
Color (a*)	Raw-0	7.94±0.42^{bA}	10.24±0.28^{bB}	11.63±0.25^{bC}
	Raw-9	4.76±0.27^{aA}	8.27±0.25^{aB}	9.85±0.25^{aC}
	Cooked-0	4.85±0.36^{bA}	8.11±0.37^{bB}	8.19±0.37^{bB}
	Cooked-9	3.52±0.34^{aA}	6.11±0.32^{aB}	7.19±0.32^{aC}
TBARS (mg MDA/kg)	Raw-0	0.06±0.004^{bB}	0.05±0.005^{bB}	0.01±0.004^{bA}
	Raw-9	0.31±0.004^{aB}	0.04±0.004^{aA}	0.03±0.004^{aA}
	Cooked-0	0.32±0.005^{bB}	0.16±0.005^{bA}	0.15±0.006^{bA}
	Cooked-9	1.09±0.005^{aC}	0.24±0.005^{aB}	0.14±0.006^{aA}

Different letters (a–b) in the same column indicate significant differences (P<0.05).
Different letters (A–C) in the same row indicate significant differences (P<0.05).

IV. CONCLUSION

The results indicate that addition of *Pleurotus ostreatus* powder in pork patties reduced lipid oxidation, which also demonstrated that edible mushrooms possess great potential as an antioxidant ingredient to extend the shelf life of meat products.

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