

INCLUSION OF COFFEE BAGASSE EXTRACT ENHANCES TOTAL ANTIOXIDANT ACTIVITY IN PORK MEAT

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I. OBJECTIVES

The study objective was to evaluate the effect of adding extract of coffee bagasse (i.e., coffee spent grounds) on total antioxidant activity in pork patties.

II. MATERIALS AND METHODS

Fresh ground pork (*M. semimembranosus*, 48 h postmortem) and pork backfat were procured from a local processor. The lean and fat ingredients were homogenized (20% fat in the final formulation) with water (5%) and salt (1.5%) for patties' elaboration (40 g each). In 2 replications, 6 patties were allocated to each of 3 treatments ($N=36$) as follows: untreated patties (Control), patties added with coffee bagasse at 0.05% (T1), and patties added with butylated hydroxytoluene at 0.01% (T2). Samples were placed in polypropylene trays and wrapped with polyvinyl chloride film (17,400 cm³ O₂/m²/24 h at 23°C) and stored (4°C/9 d/under darkness). Each sampling day, patties were subjected to an aqueous extraction by ultrasound-assisted method to yield the pork meat juice. The meat juice total antioxidant activity was determined by total phenolic content (TPC), free-radical scavenging activity (FRSA), and reducing power activity (RPA) methods. Data were subjected to analysis of variance, and means were separated by Tukey's test ($P<0.05$).

III. RESULTS

As shown in Figure 1, TPC, FRSA, and RPA were significantly affected by treatment and storage time ($P<0.05$). TPC values decreased during storage, and at day 9, higher TPC values ($P<0.05$) resulted from patties treated with extract of coffee bagasse (T1) and butylated hydroxytoluene (T2). All FRSA values were reduced during storage, and at day 9, patties from T1 showed the highest antiradical activity ($P<0.05$). Also, RPA was reduced ($P<0.05$) during storage in T1 patties, while no significant changes were detected in patties from the Control and T2 groups ($P>0.05$).

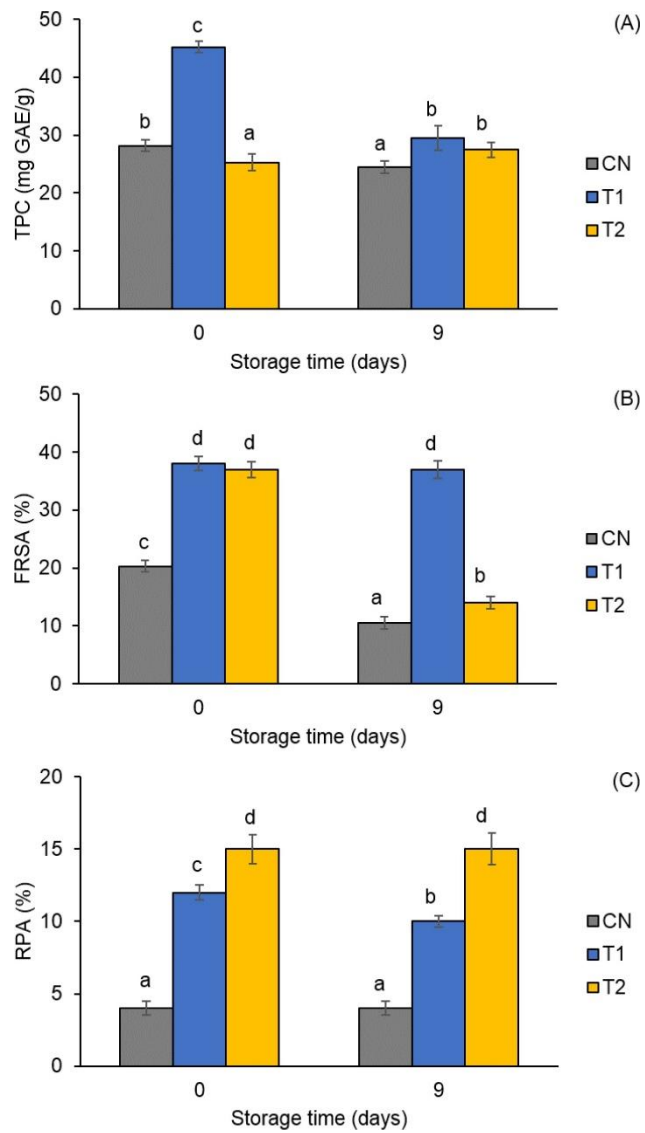


Figure 1.

Image

IV. CONCLUSION

Coffee bagasse extract is a valuable source of antioxidants, and their addition in pork meat increases the presence of phenolic compounds, enhancing their antioxidant properties (FRSA and RPA) during storage.

Keywords: antioxidant, coffee residues, polyphenols, pork