Garcinia (*Garcinia quaesita*) as a Natural Food Preservative

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Even though chemical preservatives are commonly used in the food industry, some are proven to cause negative health effects. Therefore, food industry is seeking alternative natural preservatives. The objective of this study was to evaluate the preservative effect of garcinia (*Garcinia quaesita*). Five garcinia treatments; 3 water extracts (T1:concentrated in dialysis tubing below 60 °C, T2:concentrated in vacuum oven below 60 °C and T3:heat macerated at 100 °C), solvent extract (T4), and powdered garcinia (T5) were used in this study. Preservative action using antimicrobial activity against *Escherichia coli, Bacillus cereus, Aspergillus niger,* and *Saccharomyces cerevisiae* strains, antioxidant activity (DPPH assay) and the total phenolic content (TPC) were assessed. The highest antimicrobial activity was observed in T4 while all water extracts and garcinia powder showed moderate antimicrobial activity against the microbial strains. All garcinia treatments showed good antioxidant capacity (60 - 80%). The highest TPC was observed in T3 (22 mg gallic acid equivalents per mL). The pH of the garcinia treatments was in the range of 1.7 – 2.55 and all extracts were of shades of red color. A storage study was conducted incorporating garcinia treatments into tomato sauce and compared with a sodium benzoate added to tomato sauce as the control. No observable yeast and mold count was observed in any sample after 4 weeks of storage. Garcinia-treated tomato sauces had lower pH values compared to the control. The pH reduced over storage time while there was no significant ($p>0.05$) change in color or total acids during the storage. A sensory analysis was conducted using garcinia powder and water extract incorporated tomato sauce and the control to assess consumer preference. The garcinia-treated tomato sauce had a similar preference compared to the control. Therefore, garcinia could be used as an effective natural preservative in food.

Keywords: Antioxidant capacity, Garcinia, Natural preservative, Solvent extraction, Water extraction

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