

**DETERMINATION OF THE EFFECT OF COCONUT
SHELL EXTRACTED CARBON MONOXIDE ON THE
QUALITY OF FROZEN YELLOW FIN TUNA (*Thunnus
albacares*) PRODUCTS**

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ABSTRACT

Carbon monoxide (CO) are used either alone or as part of a filtered process to variety of seafood in an effort to maintain the desirable color and several other quality attributes at the frozen storage (- 18 °C). The core objective of this study was to determine the effect of coconut shell extracted filtered CO for the chemical, physical, microbiological and sensory quality attributes of frozen yellow fin tuna (*Thunnus albacares*) tuna product. Coconut shell extracted CO treated steaks were processed from the same lot of imported grade A tuna fish from 57 FAO and store at 4 °C for 48 hours after injection and subsequently freeze (- 18 °C) and analyzed for chemical, microbiological, physical, and sensory profiles. Coconut shell extracted filtered CO smoke treatment was significantly improved the cherry red color (a*) of the product which is appreciated by the consumer during purchasing, as well as lightness (L*) and yellowness (b*) by the CO concentration (p<0.05). Treated steaks recorded reduced oxidation with significant modification with increasing concentration of CO (p<0.05). Treated CO concentration of the coconut shell extracted smoke significantly modified the growth of the microorganisms in the frozen tuna steaks (p value<0.05). Total plate count (TPC) was significantly decreased with the increasing CO concentration in the coconut shell smoke. Furthermore, all other quality properties including firmness, histamine level and sensory profile have shown a similar pattern of change without significant modifications with CO concentrations (p>0.05). Both 60% and 75% CO concentrations in the coconut shell extracted smoke were shown similar (p>0.05) trend for several quality attributes.

Key words: coconut shell, carbon monoxide, yellow fin tuna, frozen, products quality