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“Bridging the gap between increasing knowledge and decreasing resources”

Effects of a Prototype Solar Dryer on the Quality of Solar Dried Fish: Reducing Post-Harvest Losses at the Artisanal Fisheries Sector of Ghana

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Abstract

Artisanal fisheries has provided Ghana both food and feed fish for years. The main problem of this sector is post-harvest losses. Earlier studies identified some causes of these losses to include weak local regulations and monitoring, lack or inadequate fishing, processing, storage and sales support systems. Research targeted at solving these problems has not been exhaustive, as issues such as high cost of processing, reduction in value of processed fish due to poor processing methods and absence or negligence of quality standards still exist. Although freezing has been recommended and used for fish, it is not suitable for all fish species. The texture of Anchovy (*Engraulis encrasicolus*) for example is negatively affected by freezing, hence they are smoked or open air dried immediately on landing. Smoke drying increases processing cost and impact on the climate by way of carbon emissions coupled with reduction in the number of trees that help clean the atmosphere of the carbon gases. Traditional open air drying though cheaper has over the years yielded low value fish due to contamination and bad weather. The current study tested performance of a prototype solar dryer, on the improvement of the quality of anchovy. Fresh anchovies obtained from the James Town Accra Ghana Landing Beach, were washed in sea water and transported on ice to the laboratory. The fishes were transferred into a perforated cold chest containing flaked ice (ratio of flaked ice to fish being 1:1) for use the next day. Drying was carried out for 36 hours. Water activity (aW) using a capacitor type aW metre and colour by the L* a* b* method were used to assess the quality of solar dried fish. The L* a* b* values obtained were 52.77 ± 1.18 , 0.87 ± 0.13 and 3.23 ± 0.60 respectively, and aW of 0.62 ± 0.01 . Drying in the prototype solar dryer also reduced the drying time from 48 hours to 36 hours and produced products with quality close to those produced by the open air drying method.

Keywords: Anchovies, pelagic fish, prototype solar dryer