

DEVELOPMENT OF A LOW-PRESSURE FISH DRYER

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ABSTRACT

Fish products are major sources protein supplements for human diet which are of low fat an advantage cherished by all consumers. Quite substantial amount of this products are lost to spoilage due to untimely removal of moisture content an off shoot of inappropriate and inadequate processing methods, lack of advance short time drying outfits to assist the local processors to stall the fish spoilage mechanism orchestrated by activities of bacteria. To meet this short time drying need and increase fish storage shelf life and overall productivity,, an indigenous affordable vacuum dryer was conceived and developed locally. The unit was fabricated using local sourced materials and was tested on cat fish samples. A constant vacuum head of 3.6 KPa was attained at pumping rate of 320 l/hr, temperature range of 38 and 42oC, energy and power level of 498.6 KJ and 13.6W with an effective moisture diffusivity of $7.58 \times 10^{-11} \text{m}^2/\text{s}$ recorded for the fish samples dried within 10 hours. Total moisture content removal efficiency of 85% was attained This method of drying was very effective in drying the fish samples and still requires further optimization studies to scale up the unit for commercial purpose.

KEYWORDS: Vacuum, Low Pressure, Fish, Dryer & Diffusivity

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