

## Design and Evaluation of Oven Type Furnace Using Earth Materials for Roasting Foods

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**Abstract :** The research targeted enhancing energy utilization and reducing waste in roasting processes, particularly in Camarines Norte, where Bounty Agro Ventures Incorporated dominates through brands such as Chooks-to-Go, Uling Roaster, and Reyal. Competitors like Andok's and Baliwag Lechon Manok also share the market. A staggering 90% of these businesses use traditional glass-type roasting furnaces fueled by wood charcoal, leading to significant energy loss and inefficiency due to suboptimal heat conservation. Only a mere 10% employ electric ovens. Many available furnaces, typically constructed from industrial materials through welding and other metal joining techniques, are not energy-efficient. Cost-prohibitive commercial options compel some micro-enterprises to fabricate their furnaces. The study proposed developing an eco-friendly, cost-effective roasting furnace with excellent heat retention. The distinct design aimed to reduce cooks' heat exposure and overall fuel consumption. The furnace features an angle bar frame, a combustion chute for fuel burning, a heat-retaining clay-walled chamber, and a top cover, all contributing to improved energy savings and user safety.

**Keywords :** biomass roasting furnace, heat storage, combustion chute, start-up roasting business

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