

## **B.6. INNOVATIVE MICROWAVE-ASSISTED DRYING PROCESS FOR SEA BUCKTHORN SEEDS IN A SUSPENDED LAYER**

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**Abstract.** This study presents an innovative drying process for sea buckthorn (*Hippophae rhamnoides*) seeds, designed for applications in the food industry and research laboratories focusing on drying technologies. The proposed method employs a fluidized layer formed in a vertically oriented square-section tube, where seeds are suspended by an air stream with a velocity of 9.6 m/s and a flow rate of 360 m<sup>3</sup>/h. The drying process consists of three main stages: Stage I: Loading the seeds into the tube and forming the fluidized layer using the controlled air stream; stage II: Activating the microwave generator at 350 W and 2460 MHz for 140 minutes, accelerating moisture removal; stage III: Automatic separation of seeds based on mass and moisture content: initially, seeds with the lowest mass and moisture are separated, followed by intermediate seeds, and finally, after approximately 190 minutes, seeds with higher mass and moisture content are separated. This process enables high uniformity of drying in a significantly reduced time compared to conventional methods. The proposed technology offers advantages in energy efficiency, process control, and quality of the dried seeds, making it a promising solution for optimizing modern drying techniques in the food industry.

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**Keywords:** seed drying, sea buckthorn, fluidized layer, microwave drying