Recovery of solved salts of the liquid effluents from the manufacture of cured hams: preliminary study


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ABSTRACT

Liquid effluents generated in the food industry can be treated by several separation processes to recover some components for possible reuse and/or valorization. This is done to further concentrate the volume of final waste to be managed. One of the industrial process in which this problem arises is the manufacturing of cured hams. In this process, hams are subjected to various steps including the addition of salt and subsequent desalting and washing with water, before the start of curing itself. This process generates a liquid effluent characterized by a high content of solved salts (mainly NaCl) and a variable amount of organic matter. Generally, this liquid effluent is dumped without being treated, causing environmental problems. The aim of this work is to find a proper treatment of the liquid effluent from the curing of hams, with the main objective of recovering the solved salts, as well as to minimize the liquid waste volume to manage. Some of the treatment techniques that could be applied to achieve these objectives are very usual in industrial effluent management: adsorption, chemical precipitation, ion exchange, evaporation, and membrane technology. The proposed treatment in this work consists of an appropriate pretreatment and subsequent treatment by membrane technology (salt preconcentration) and natural evaporation (concentration to solid state). Natural evaporation process takes place at ambient conditions, which brings a great advantage in terms of energy consumption, and it is based on the packing of wet surfaces exposed to the action of wind or forced ventilation, in order to increase the exposed surface per unit volume and to improve the productivity of the process. This paper presents the preliminary experiments carried out to characterize the liquid effluent from an industry of curing hams, and the treatment that has been tested to condition the effluent for further treatment by membrane technology and natural evaporation.

Keywords: Natural evaporation; Membrane processes; Valorization; Recovery; Cured hams

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