VALORISATION OF WASTE FROM BREWING INDUSTRY

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The beer industry generates wastes as spent grain, yeast, kieselguhr and sludge which can be reused in other industry. In this study it is researched the valorisation of brewery waste yeast.

Yeast is a natural food supplement, rich in protein, amino acids, water-soluble vitamins (thiamine, riboflavin, niacin, folic acid, vitamin B12 and pyridoxine). It can serve as a valuable raw material in various fields of application, such as: medicine, bakery, cosmetology, feed for birds and animals, land fertilizer, as well as energy production.

The presented work deals with the methods of yeast drying. The proposed rotary drum dryer machine uses vapor as the warmth source and uses indirect heat transfer to heat the material and evaporate moisture. This installation consists of the drying drum, beater, transmission system, scraper mechanism, dosing device and steam system. The installation is equipped with an electric control panel and a steam evacuation device.

As results of the research it was studied the kinetic process of yeast drying.

On the drying curve, the following periods are highlighted: -free moisture removal period-during this period, free moisture evaporates intensively from the surface (up to 10-15%), reducing the internal energy in the product, and the temperature of the product decreases continuously, - drying period at constant speed - during this period intensive evaporation of moisture occurs. Moisture is mainly removed from the surface layers of the product, constant heat resistance and moisture transfer are concentrated on the surface, therefore, the drying curve does not change during this period, - period of decreasing drying speed-the layers of the product on the surface begin to heat up, so in 30 – 60 min.

Following the study there were analysed the yeast processing methods of residual beer. The yeast separation and drying processes were analysed. The use of the drum plant for drying of waste brewer's yeast was proposed. It were analysed the processes of separation and drying of the yeast. It was proposed to use the drum installation for drying residual brewer's yeast.

Key words: brewery waste, kieselguhr, yeasts, spain grain, sludge, drying.

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