

THE INFLUENCE OF BIOACTIVE ADDITIVES ON THE PROCESS OF ALCOHOLIC FERMENTATION OF WASTE BIOMAS

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The quantity of agricultural waste has been rising rapidly all over the world, many studies has revealed that fruits and vegetables are the main source of bioactive compounds. Wastes from the agro-industrial sector, due to their toxic effects with regard to plants and living organisms, cannot be dumped in the soil. However, they can serve as renewable source of value-added products, following the specific digestive treatment. This research was focused on studies of vinasse fermentation processes in the presence of bioactive substances introduced directly into the digested biomass.

Table 1. Comparative efficiency of different types of additives of bioactive substances in the vinasse fermentation process at concentration of 0,003 g/L biomass.

Nr. crt.	Bioactive substance used as an additive to the fermented biomass, 3g/L	Total volume of CO ₂ emitted gas, cm ³	Fermentation time, h
1.	Dihydroxy fumaric acid	266.00	76
2.	Aescinum	251.01	55
3.	Tomatin	233.46	78
4.	Sclareol	232.50	55
5.	Vanillin	229.00	69
6.	Catechin	180.00	61
7.	Betuline	250.00	80
8.	Menthol	200.00	70

The comparative assessment of different additives action in the studied processes have demonstrated that the dihydroxyfumaric acid caused the emission of 266 cm³ CO₂ in 76 hours, aescinum – 251 cm³ in 55 hours, tomatin – 233 cm³ during 78 hours, sclareol – 232 cm³ during 55 hours, vanillin – 229 cm³ during 69 hours, whereas catechin – 180 cm³ during 61 hours of fermentation, until the fermentation process was completed. The principle of stimulating and intensifying the biochemical fermentation process may be due to the oxidation - reducing properties of SBA.

Keywords: Agro-industrial wastes, vinasse, fermentation, bioactive additives.

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