

**EFFECT OF INOCULUM IN THE EMULSIFICATION INDEX OF
BIOSURFACTANTS PRODUCED BY *BACILLUS VELEZENSIS* USING WHEAT
BRAN AS SUBSTRATE IN SOLID STATE FERMENTATION.**

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Some compounds of microbial origin exhibit surfactant properties and are known as biosurfactants, which are byproducts of bacteria, fungi and yeasts metabolism. The present study aims to evaluate the effect of the pre-inoculum in emulsifying activity and biosurfactants production by *Bacillus Velezensis* in solid state fermentation using wheat bran as substrate. three types of inoculum were used in the fermentation: pre-inoculum prepared with wheat bran as substrate, submerged pre-inoculum prepared with nutrient broth and direct addition of bacteria suspended in slant nutrient agar. Microorganisms were grown in tubes with nutrient agar at 37°C for 24 hours. After this period, a cellular suspension was made, and 2 ml of this served as inoculum to the wheat bran without pre-inoculation medium and 1 ml for the preparation of liquid pre-inoculum (50 ml of nutrient broth, kept in agitation at 37°C for 24 hours) and solid pre-inoculum (10g of wheat bran with buffer and glycerol, incubated in Erlenmeyer flask at 37°C for 24 hours). From the pre-inoculum broth, it was transferred 2 ml of cell suspension to plastic bags containing 10g wheat bran moistened to a relative humidity of 80% with phosphate buffer solution and glycerol as inducing production of biosurfactant and incubated for 96 hours at 37°C. Extraction of cell-free broth of fermentation media was carried out with 100 ml of water heated to 90°C and agitation at 200 rpm in Shaker for 60 min. Then, the sample was vacuum filtered and the extract used for the evaluation of the emulsifying activity. The emulsifying activity was determined by adding toluene (2 ml each) in the culture broth free of cells (3.5 ml) in test tubes followed by stirring at high speed in a vortex for 2 min, subsequently performing the optical spectrophotometer at 620 nm. The extract which had the direct addition of the microorganism obtained absorbance of 2.1, that with the submerged pre-inoculum in nutrient broth obtained 2.4 and with fermented wheat bran inoculum an absorbance value of 2.1. The results indicated that there was no significant difference in the biosurfactant production in different types of pre-inoculum. It was concluded that there is no need to carry out pre-inoculum for the tested conditions..

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