Analysis of the Influence of Medium Components in the Lipopeptide Production by *Bacillus sp.*

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INTRODUCTION: Lipopeptides (LP) are amphipathic compounds derived from microbial secondary metabolites with great interest in the industrial range due to a wide variety of applications. Exhibit highly stable to variations in temperature, pH and salinity, surface-active and emulsifying activity. They are alternatives to synthetic surfactants because they are biodegradable and of low toxicity. Although promising, the cost to obtain is high, with low final yield. The evaluation of the components of the culture medium and the factors that influence the production are determinants to make the process viable. **OBJECTIVES:** To evaluate the influence of the composition of the culture medium in the production of LP by *Bacillus sp*. through fractional factorial design. **MATERIALS AND METHODS:** The analysis of the significant variables that influences BS production and the experimental units were made through Minitab®17 software. After the cultivation, acid precipitation took place (pH = 2.0) followed by centrifugation and lyophilization. This was weighed to estimate the LP concentrations making possible to determinate the effects of media components in the production of BS. **RESULTS AND DISCUSSION:** Through p-value analysis ($p<0.05$) was determined that all components significantly influence the production of LP, being the effect positive or negative. The analysis of the Pareto chart combined with the effects chart, both generated by the software, evaluated that, although the influence of all components, three showed increased interference, as follows: sucrose, with a positive effect, and L-tryptophan with ferrous sulphate heptahydrate having an effect negative in the production of LP. **CONCLUSION**: Although all components influence the production, sucrose, L-tryptophan and iron sulphate heptahydrate exhibited a greater influence in the production of LP. The next step in the optimization process is to perform the central composite rotational design (CCRD). Ultimately, the production process could be employed enabling the substitution of synthetic surfactants for natural surfactants.

Key words: lipopeptide, *Bacillus sp*., fractional factorial design
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