INOCULUM PRODUCTION OF *Monascus purpureus* WITH *Chenopodium quinoa* IN SUBMERGED CULTURE

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INTRODUCTION

Fermentation in solid substrate is widely used in the production of inoculum in fungi, but the drawback with this technique is that the fungus takes weeks to invade within the substrate, apart from not having full control of the process. For that reason, it is intended to produce an inoculum by submerged culture which produces a greater amount of biomass, with shorter production time. This research employed the fungus *Monascus purpureus*, which has been widely used in Asian gastronomy due to the properties of its secondary metabolites, and as substrate used *Chenopodium quinoa* for being rich in proteins and carbohydrates.

METHODS

A volume of 100 mL was used with the following parameters: pH (5.0, 6.0, 7.0), rpm (100, 120, 140) and sodium chloride concentration (0%, 0.01%, 0.05% and 0.10%), having as response variables the N-acetyl glucosamine (N-AcG). In 250mL flasks, 4g of quinoa flour was added, 100mL of distilled water with sodium chloride in different concentrations (0, 0.01, 0.05, 0.1M), adjusted to different pH (5, 6, 7), then sterilized. After reaching room temperature, 0.5mL of inoculum was added and incubated with agitation of 100, 120, 140 rpm according to the treatment, at a constant temperature of 30°C for 5 days in darkness. After the time elapsed, the pellets formed were filtered and dried at 60°C to a constant weight. The dried samples were ground and stored at 4°C until the respective analyses of N-AcG concentration (mg) and pigments. The flasks were analysed in triplicate.

RESULTS

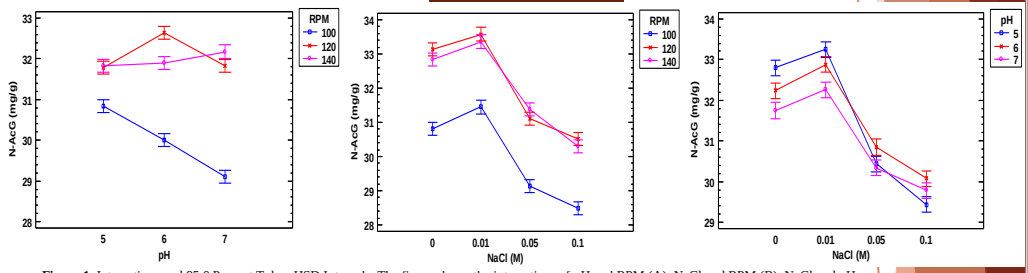

Figure 1. Interactions and 95.0 Percent Tukey HSD Intervals. The figure shows the interactions of pH and RPM (A), NaCl and RPM (B), NaCl and pH (C) in relation to N-Acetyl Glucosamine (N-AcG) production in mg/g dry matter.

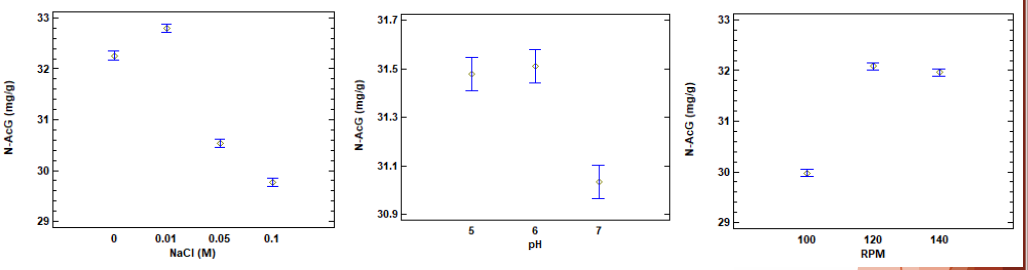

Figure 2. Means and 95.0 Percent Tukey HSD Intervals for NaCl, pH and rpm on the formation of N-AcG

CONCLUSION

These results demonstrate that a suitable inoculum with a considerable amount of mycelium can be generated in a reduced space and in a shorter time for future crops that have quinoa as food matrix, having as a maximum production of 34.83 mg of glucosamine/g dry weight ($p<0.05$) in the conditions of NaCl at 0.01%, pH 6 at 120 rpm.

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