

TITLE: STANDARDIZATION OF THE PIGMENT PRODUCING METHOD BY ACTINOBACTERIA ISOLATED FROM AMAZON

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ABSTRACT:

Microorganisms are considered potential sources of natural pigments of greater stability at different ranges of pH and temperature. In addition, obtaining microbial pigments presents advantages by the possibility of predictable and controllable yield through in vitro culture optimization strategies. Among the groups of bacteria of biotechnological interest, the actinobacteria stand out because they produce several bioactive metabolites that are the active principle of several drugs. This group of bacteria presents the ability to produce pigments of chemical structure and varied biological action, such as antimicrobial and antioxidant action. However, little is known about the distribution of actinobacteria isolated from Amazonia capable of producing pigments. In this sense, the purpose of this work was to standardize the method of obtaining pigments from actinobacteria of the genus *Streptomyces* sp. isolated from different environments of the Amazon biome. Twelve strains of *Streptomyces* sp. the LV2, LV7, LV9, LV16, LV18, LV19, LV20, SIL37, SIL41, AQUA14 and AQUA17. For the screening of pigment producing bacteria, the strains were cultured in flasks containing 3 mL of different culture media under continuous shaking at 180 rpm for 168 h. The media used were International *Streptomyces* Media (ISP1, ISP2, ISP3, ISP4, ISP5), Yeast Asparagine Medium (AL) and Nutrient Broth Medium (CN). At each 24-h interval, the pigment production and the intensity of the pigment by visual contrast were checked for selection of the highest performance strain in the pigment production, determination of the period of greatest production and evaluation of the influence of the pH of the medium on the microbial performance (pH 3.5, 4.5, 5.5, 6.5, 7.5 and 8.5). Of the 12 pigment producing strains, the LV7 strain was selected, due to the ability to produce diffuse characteristic orange pigment with higher color intensity in 72h of culture. The pigment production is preferably in the ISP2 and ALA media, in the pH range between 4.5 and 8.5, with better performance in the respective medium at pH 6.5. These data show that actinobacteria present in Amazonia are a promising source of stable natural pigments in different pH ranges, a feature that is attractive to the food industry.

Keywords: Natural pigments, Actinobacteria, Amazon.

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