

TITLE: EFFECTS OF TEMPERATURE, PH AND DYEING CONDITIONS UNDER THE EXTRACT OF PIGMENTS PRODUCED BY FUSARIUM GRAMINEARUM

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ABSTRACT :

Since remote times natural dyes were used in the coloring of food, textiles and cosmetics. However, the discovery of artificial 'Malva', by Perkin in 1856, completely changed the scenery of the coloration of products for the human consumption, passing these, to be colored using synthetic dyes. Although, several studies have demonstrated the carcinogenic and teratogenic potential of these compounds. Therefore, products from renewable source and sustainable has obtained featured due the benefits that bring to health, security and the environment. This study objected evaluate the stability of the pigment extract produced by *Fusarium graminearum* as a candidate the natural dye to be used in dyeing processes. The *F. graminearum* ethanolic extract, cell free, was concentrated in a rotary evaporator. The pigment extract was aliquoted in tubes and each one was submitted to a temperature of 40 to 100°C for 10 min. Stability at pH was evaluated in the range of 2.0 - 14.0, with a reaction time of 10 minutes expected. Likewise, the extract was evaluated against stress conditions as 60°C during 12 hours and sunlight for 2 hours. The stability to dyeing conditions for use of this extract in tissue coloring was measured by the addition of 0,1 to 1% saline solution (NaCl) and acid solution (C₆H₈O₇). The results were evaluated by UV-vis spectrophotometry before and after the submission of the extracts the cited conditions to verify if there was or not color degradation. The percentage of stability of the extract was obtained by the equation $E = [(A_0 - A_1) \times 100] / 3$, where A₀ and A₁ are the initial and final absorbance, respectively, and 3 the final volume of each tube. The extract was stable at up to 80°C (99.4%), and at pH 6 (100%). The extract exposed to saline solution was 99.6% stable, while in acid solution it was 98.8%. The extract incubated at 60°C for 12 hours remained stable at 98%, while the extract left under sunlight had a higher rate of color loss, being stable at 88.9%. The results obtained demonstrate that the extract produced by *Fusarium graminearum* shows great stability and can be used in dyeing processes in place of synthetic dyes without significant loss of their characteristics.

Keywords: Stability, Stress, Dye, Natural.