Reunión de la
Red Mexicana de Extremófilos

Popocatépti e
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Baja California

Taller Internacional de Organismos Extremófilos

International Workshop of Extremophile Organisms: Preserving the Biodiversity, Cosmovision and Cultural Heritage of the Extreme Ecosystems
and
2d Meeting of the Mexican Association of Extremophiles

October 27th to 31th, 2020, Oaxaca, Oax.

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(Calz. Porfirio Díaz 102, Reforma, 68050 Oaxaca de Juárez, Oax.)

S2: 39_Allura Red biobleaching by the azo-reducing bacteria, *Pseudomonas stutzeri*

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Azo dyes are part of the class of synthesized aromatic dyes, having one or more azo bonds (-N=N-); these are used in textile, cosmetic, paper, food and pharmaceutical industries. The presence of azo dyes causes serious problems in the aquatic environment, such as obstruction of light penetration, oxygen reduction and toxic effects on aquatic flora and fauna. An effective and environmentally friendly way to treat azo dyes is the application of biological processes, where diverse groups of microorganisms rapidly promote the discoloration of contaminated aqueous media through the process of dye demineralization. Degradation of azo dyes by bacteria generally occurs in two stages. In the first stage the azoreductase enzymes break the azo bond of the dye under anaerobic conditions, while in the second stage a degradation of the aromatic amines develops under aerobic conditions. Some of the bacterial genera reported in the discoloration of aqueous media contaminated with azo dyes are *Shewanella, Rhodopseudomonas, Psychrobacter, Enterococcus, Staphylococcus, Providence, Bacillus* and *Pseudomonas*. Our group had demonstrated that *P. aeruginosa* and *B. subtilis* discolor aqueous media to 88% and 92% respectively of Allura Red (R-40), under microaerophilic conditions. Likewise, *P. stutzeri* has been reported to be able to decolorize 86.2% of the azoic acid blue under anaerobic conditions. R-40 is one of the azoic colorants mainly used in food, textile and cosmetic industries. In the present research, the decolorization efficiency of R-40 was evaluated by independent cultures of *P. stutzeri* strains Rph9 and Rph13 grown in Luria Bertani broth supplemented with R-40 at 37 ˚C, under microaerophilic conditions. Its velocity and maximus bleaching capability will be shown.