BIOLOGICAL TREATMENT OF INDUSTRIAL TEXTILE WASTE WATER CONTAINING AZO DYES BY NEWLY ISOLATED BACTERIAL STRAINS UNDER AEROBIC CONDITION.

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This Dissertation was submitted to the Department of Chemistry, Faculty of Graduate Studies, University of Kelaniya, as a partial fulfillment of the M.Sc. In Industrial and Environmental Chemistry.

ABSTRACT

A biodegradation was applied to aqueous azo-reactive dye solutions aiming at isolation of novel bacterial strains which can degrade various azo dyes under aerobic condition. In this study, the biodegradation of eight azo dyes, namely, Drimarene red X6BN, Drimarene blue XGN, Cibacron black C2R, Remazole red RB, Remazole navy RGB, Cibacron red FNR, Everzol red 3BS, and Everzol black GSP were tested in batch culture experiments under aerobic conditions.

A *Micrococci sp* strain, two *Pseudomonas sp.* strains, and three *Bacillus sp.* strains that grow aerobically on azo dye were isolated from textile waste water effluent by enrichment techniques.

Under these conditions, Drimarene red X6BN was degraded more efficiently with one of *Bacillus sp.* (C) strain than other individual strains and consortium. Degradation of Drimarene blue XGN occurred more efficiently with *Pseudomonas sp.* (F) strain than other individual strains and consortium. Cibacron black C2R was degraded more efficiently with *Bacillus sp.* (B) strain than other individual strains and consortium. Cibacron red FNR was degraded more efficiently with *Pseudomonas sp* (F) strain than other individual strains and consortium. Degradation of Remazol red RB occurred efficiently with the consortium than other individual strains. Everzol blak GSP was degraded more efficiently with *Micrococci* and consortium than other individual strains. Degradation of Everzol red 3BS occurred efficiently with the *Micrococci* than other individual strains and consortium.

The results of the diazotization test of the cibacrone black C2R indicate that the azo dyes were reduced by novel bacterial strains, under aerobic conditions resulting in partially degraded aromatic amines during the batch culture experiment. Therefore we can conclude the structurally different textile dyes were reduced by novel bacterial strains, under aerobic conditions resulting in partially degraded aromatic amines.