

## Decolorization of wastewater with ultrasonic methods

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Synthetic dyes are frequently used in textile industry and are important environmental problem due to the color, high chemical oxygen demand, pH, temperature, environmental aesthetic and toxicity effects in textile wastewater. These kind of wastewaters require advanced clarification methods due to having high concentrated complex organic and surface active substances that separate hardly through their complex chemical structure. The dyeing agent consists of the chromophore group that gives molecule the color and functional group that binds the dye to the fiber. Textile dyes should be removed from the environment directly as being highly toxic and destructive to the environment. Wastewater that contains unremediated waters diminishes the light permeability and inhibits the photosynthetic activity. It causes the death of species that cannot tolerate short oxygen as the dissolved oxygen amount is lessened. One of the other consequences of these discharges is the emergence of toxic-carcinogenic aromatic amines. This reason, textile industry wastewater should not discharge to the environment directly, should be remediated.

In this study, the problems that were mentioned before were tried to be solved with the ultrasound system. The effects of  $\text{Na}_2\text{SO}_4$ ,  $\text{NaNO}_3$ ,  $\text{NaHCO}_3$ ,  $\text{N}_2$  were investigated in the ultrasound environment. Different frequencies were applied individually and sequentially. It was observed that with less chemical consumption and more qualified wastewater treatment can be handled by using the ultrasound. With the aid of the ultrasound system; it is possible to have less chemically contaminated waters and better applications in textile dye decolorization.

**Key Words:** Ultrasound, Color, Water treatment

### Biography

Umit Yılmaz Yıldız, graduated from Eskişehir Osmangazi University at the age of 24 years. He has completed Biotechnology Master Program in Anadolu University in February 2012 and he is still PhD Student Department of Environmental Engineering at Anadolu University. His research interests include environmental microbiology, biotechnology and antimicrobial systems.

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