

**MINERALIZATION STUDY OF THE TREATED WASTEWATER  
FOR NOZI BATIK AND SLAUGHTERHOUSE  
VIA ADSORPTION AS POST-TREATMENT METHOD**

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## **ABSTRACT**

### **MINERALIZATION STUDY OF THE TREATED WASTEWATER FOR NOZI BATIK AND SLAUGHTERHOUSE VIA ADSORPTION AS POST-TREATMENT METHOD**

Adsorption process is an effective method used for many applications in water and wastewater treatments. The aim of this study is to examine the adsorption capacity of post-treatment in a lab-scale continuous flow electrocoagulation-adsorption system. Batik and slaughterhouse wastewater treatment evaluated via mineralization study by using chemical oxygen demand (COD) and determine the adsorption capacity of continuous flow electrocoagulation-adsorption system. The Nozi Batik and Ayam Bismi wastewater have studied under two condition, untreated (without electrocoagulation) and treated (with electrocoagulation). The untreated condition has been divided into two part which are different mass (1, 2, 3, 4, and 5 g) and time interval (15, 30, 45, and 60 s). The DO, pH, and COD amounts of each sample were recorded also with FTIR result. Different mass study reacted positively where the COD amount for both samples was reduced over 300 mg/L to 59 mg/L. Time interval study, the number of COD declined from 128 mg/L and 70 mg/L to 61 mg/L and 67 mg/L for the first 15 seconds till the last 60 seconds adsorption time. The treated (with electrocoagulation) study also gave positive impact with the lowest values of COD recorded were 61 and 102 mg/L. FTIR results were mostly incomparable due to errors. The study showed that adsorption method did affect the amount of DO, pH and most importantly the COD of both wastewaters. The results of DO, pH and COD were significantly positive where it finally safe to be discharged as stated in Water Quality Index (WQI) of Malaysia.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Background of Study

Alongside with the rises of the technology nowadays, the world has been really devastated with a lot of pollutions. One of the pollutions is the water pollution which affected most of the living creatures including humans as it is one of our basic needs. There are two industries those contribute quite a lot in the contamination which are the textile and slaughterhouse industry (Guadie et al.,2021).

Textile industry contributes one-fifth of global industrial water pollution and produce clothing with 20,000 chemicals which mostly are carcinogenic (Kaur, & Kainth, 2020). This industry has produced the most hazardous effluent, such as dyes, which are extremely difficult to degrade. Each year, the dye volume in the global textile industry is measured differently, but it exceeds 700,000 tonnes (Chen et al., 2020).

As in Malaysia, one of the famous textile industries is batik industry which significantly contribute to Malaysia's economic