

**DEGRADASI ZAT WARNA *DIRECT RED-23* SECARA FOTOLISIS
MENGUNAKAN KATALIS C-N-codoped TiO₂**

Skripsi Sarjana Kimia

Oleh:

YULI OKTA FITRIYANI

(1310411049)

Pembimbing I : Prof. Dr. Safni, M. Eng

Pembimbing II : Dr. Upita Septiani



JURUSAN KIMIA

FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM

UNIVERSITAS ANDALAS

PADANG

2017

INTISARI

DEGRADASI ZAT WARNA *DIRECT RED-23* SECARA FOTOLISIS MENGUNAKAN KATALIS C-N-codoped TiO₂

Oleh:

Yuli Okta Fitriyani (1310411049)

Prof. Dr. Safni, M. Eng*, Dr. UPITA SEPTIANI**

*Pembimbing I **Pembimbing II

Zat warna *direct red-23* merupakan pewarna sintetik yang banyak digunakan dalam industri. Limbah yang dihasilkan dari proses industri zat warna umumnya merupakan senyawa organik *non-biodegradable* yang mengandung senyawa azo dan bersifat karsinogenik. Zat warna *direct red-23* didegradasi secara fotolisis dengan sinar UV, penyinaran matahari, tanpa penambahan katalis C-N-codoped TiO₂ dan penambahan katalis C-N-codoped TiO₂. Hasil penelitian diukur dengan spektrofotometer UV-Vis pada panjang gelombang 400-800 nm. Penentuan berat optimum katalis C-N-codoped TiO₂ dilakukan dengan metode fotolisis dengan sinar UV yaitu 15 mg. Dari penelitian dapat disimpulkan metode fotolisis dengan sinar UV lebih efisien dibandingkan dengan penyinaran matahari. Tanpa katalis C-N-codoped TiO₂ persen degradasi 27,47% dan penambahan katalis C-N-codoped TiO₂ 68,68% sedangkan penyinaran matahari tanpa katalis C-N-codoped TiO₂ 13,74% dan penambahan katalis C-N-codoped TiO₂ 28,57% selama 120 menit.

Kata kunci : *Direct red-23*, Fotolisis, Penyinaran matahari, Fotokatalisis, katalis C-N-codoped TiO₂.



ABSTRACT

Degradation Of *Direct Red-23* By Photolysis Using C-N-codoped TiO₂ Catalyst

By :
Yuli Okta Fitriyani (1310411049)
Prof. Dr. Safni, M. Eng*, Dr. UPITA SEPTIANI**
* Advisor I ** Advisor II

Direct red-23 dye is a synthetic dye that is widely used in industry. Wastes generated from dyestuff industrial processes are generally non-biodegradable organic compounds containing azo compounds and carcinogenic. Direct red-23 dye was degraded by photolysis with UV Light method, solar irradiation, Without addition of C-N-codoped TiO₂ catalyst and addition of C-N-codoped TiO₂ catalyst. The results of the study were measured with a UV-vis spectrophotometer at wavelength of 400-800 nm. Determination of optimum weight of the C-N-codoped TiO₂ catalyst was performed by photolysis with UV Light method 15 mg. From the research it can be concluded by photolysis with UV Light method is more efficient compared to solar radiation. Without C-N-codoped TiO₂ catalyst was given percentage of degradation 27,47% and C-N-codoped TiO₂ catalyst adding was given percentage of degradation 68,68% while solar Without C-N-codoped TiO₂ catalyst was given percentage of degradation 13,74% and C-N-codoped TiO₂ catalyst adding was given percentage of degradation 28,57% for 120 minutes.

Keywords : Direct Red-23, Photolysis, Solar Irradiation, Photocatalysis, C-N-codoped TiO₂ catalyst.

