

## DEGRADASI SENYAWA PERMETRINDENGAN MENGGUNAKAN TiO<sub>2</sub>-Anatase DAN ZEOLIT ALAM SECARA SONOLISIS

**Zilfa, Hamzar Suyani, Safni, Novesar Jamarun**  
*Labor Kimia Analisis Terapan MIPA UNAND*

### ABSTRACT

The research about the degradation of permethryn compound had been done by sonolysis method using anatase- TiO<sub>2</sub> and natural zeolyte (mordenit kinds) as catalysts. Permethryn is one of synthetic pyrethroid pesticides that low toxicity for mamals but it is high toxicity for fishes, insects and water microorganisms. Sonolysis method is conducted by using ultrasonic wave at frequency 45 kHz. The results show that sonolysis method without the addition of anatase-TiO<sub>2</sub> and zeolite on optimum temperature at 40°C during 120 minutes treatments could be degrade 20 mg/L permethryn until 22.23%. In other hands, the degradation of 20 mg/L permethryn in the same condition with adding 0.002 g anatase-TiO<sub>2</sub> achieved 44.95% but for using 0.2 g zeolyte could be degrade 52.34%.

**Keywords :** *degradation, permethrin ,TiO<sub>2</sub>-anatase , sonolysis, zeolite*

### DAFTAR PUSTAKA

1. D. Setiawan, P. Handoko. Preparasi Katalis Cr/Zeolit Melalui Modifikasi Zeolit Alam FMIPA Jember.
2. E. Garcia, Validated HPLC metode for quantifying permethrin in parmaceutical formulation, *J.Pharmaceutical*, 24, (2001).
3. G. Tezcanly–Guyer, N. H. Ince Degradation and toxicity reduction of textile, *J. Ultrasonic sonochemistry*, 10: 235-240. (2003)
4. H. Lutnicka, Degradation of Pyrethroids in An Aquatic, *J.Wat. Res.*, 33(16): 341-346, (1999).
5. H. Destailats, Application of Ultrasound in NAPL, *J. Environ. Sci. Technol.*, 35: 3019-3024, (2001).
6. Hiskia, Sonolytic, Photolytic, and Photocatalytic decomposition of Atrazine in the Presence of Polyoxometalates, *J. Environ. Sci. Technol.*, 35: 2358-2364, (2001).

7. K. Munawir, Pemantauan Kadar Pestisida Organoklorin, *J. Oseanologi dan Limnologi di Indonesia*, 37: 13-23, (2005).
8. K. Tanaka, Improved Photocatalytic activity of Zeolit- and Silica- Incorporated TiO<sub>2</sub>, *J. of Hazardous Materials B*, 137: 947-951, (2006).
9. M. Chun Lu, Effect of Adsorbents Coated With Titanium Dioxide On The Photocatalytic Degradation Of Propoxur, *J. Chemosphere*, 38(3): 617-627, (1999).
10. M. B. Kasiri, Degradation of Acid Blue 74 using Fe-ZSM5 Zeolite as a heterogeneous photo-Fenton Catalyst, *J. Applied Catalysis B: Environmental*, 84 9-15, (2008).

