

**PENGARUH PENGGANTIAN AIR 25% DALAM PROGRAM TERAPI  
TETRASIKLIN PADA IKAN NILA (*Oreochromis sp.*) TERHADAP  
KADAR RESIDU DALAM DAGING IKAN**

**Nisa Hakimah**  
**16/403513/PKH/00594**

**INTISARI**

Upaya penurunan kadar residu dalam jaringan banyak dilakukan untuk mendapatkan kualitas produk pangan yang baik. Metode penggantian air merupakan salah satu metode dalam menurunkan kadar residu kimia pada budi daya perikanan. Penelitian ini bertujuan untuk mengetahui pengaruh antara frekuensi penggantian air 25% dengan kadar residu pada daging selama program terapi tetrasiklin pada ikan nila dan mengetahui manajemen penggantian air 25% yang sebaiknya dilakukan untuk dapat menurunkan kadar residu pada daging selama program terapi tetrasiklin pada ikan nila. Penelitian ini dilakukan melalui tiga tahap yaitu tahap perlakuan, tahap preparasi, dan analisis. Alat utama dalam menganalisis residu tetrasiklin adalah seperangkat alat KCKT merek Shimadzu versi 6.1. Penelitian ini menggunakan 72 ekor ikan nila merah jenis Nilasa (*Oreochromis sp.*) umur 6 bulan dengan berat badan antara 350-450 gram/ekor yang dibagi menjadi empat kelompok perlakuan (kontrol negatif, penggantian air 2 x 24 jam, penggantian air 1 x 24 jam, dan penggantian air 1 x 48 jam). Ikan nila diadaptasikan terlebih dahulu selama 7 hari (hari ke-1 sampai hari ke-7). Perlakuan pemberian tetrasiklin secara injeksi intramuskular dengan dosis 50 mg/kg per hari dan penggantian air 25% dilakukan pada hari ke-7 sampai hari ke-14. Eutanasi, pemotongan, penimbangan, preparasi, dan pengujian sampel dilakukan pada hari ke-0, 7, 9, 11, 13, dan 15. Hasil dari penelitian ini berupa kadar residu tetrasiklin dalam daging yang dianalisis dengan analisis statistik *repeated ANOVA* dan uji korelatif Pearson serta analisis menggunakan program *Microsoft Excel 2010*. Berdasarkan hasil penelitian menunjukkan bahwa frekuensi penggantian air 2 x 24 jam dapat memperlambat peningkatan kadar residu dibandingkan dengan penggantian air 1 x 24 jam dan 1 x 48 jam. Model persamaan yang terbentuk dari kondisi penelitian ini menghasilkan persamaan  $y = -0,8264x + 8,525$ . Berdasarkan persamaan tersebut dapat diperkirakan bahwa penggantian air sebanyak 5 x 24 jam selama program terapi (8 hari) mampu menurunkan kadar residu sampai 0,26 µg/g dan kadar residu berada di bawah batas maksimum residu dengan penggantian air sebanyak 11 x 48 jam selama program terapi. Kesimpulan dari penelitian ini adalah frekuensi penggantian air 25% pada bak fiber mampu memperlambat peningkatan kadar residu pada daging ikan nila selama program terapi dan model persamaan dapat digunakan untuk rekomendasi manajemen penggantian air 25% yang baik selama program terapi tetrasiklin pada ikan nila.

**Kata kunci: residu, tetrasiklin, KCKT, penggantian air, ikan nila**

**EFFECT OF 25% WATER REPLACEMENT ON TETRACYCLINE  
THERAPY PROGRAM AT NILE TILAPIA (*Oreochromis sp.*)  
ON THE LEVEL RESIDUE IN MEAT FISH**

**Nisa Hakimah**  
**16/403513/PKH/00594**

**ABSTRACT**

Many efforts to reduce the residue level in animal tissues have been done in order to achieve the livestock products with highest quality. Water replacement method is a way to lower the chemical residual level in aquaculture. This study was aimed to determine the correlation between frequency of replacing 25% of water tank and the residue level of fish meat, and to understand the best way in replacing 25% of water tank to reduce the residue level of tetracycline during the tetracycline therapy program in tilapia. This research was conducted in three phases: treatment process, stage preparation, and sample analysis. The main instrument in analyzing the residues of tetracycline was a set of Shimadzu HPLC instrument version 6.1. This study used 72 red tilapia fish strain of Nilasa (*Oreochromis sp.*) aged 6 months old, weighing between 350-450 grams/fish which were divided into four groups (group of negative control, group of replacement of water 2 x 24 hours, group of replacement of water 1 x 24 hours, and group of replacement of water 1 x 48 hours). The tilapias were first adapted for 7 days (day 1 to day 7). Administration of tetracycline treatment was done by intramuscular injection at dose of 50 mg/kg a day followed by replacing 25% of water tank on day 7 to day 14. The steps after that including euthanasia, chopping, weighing, running the preparation process, and running the test was done on day-0, day-7, day-9, day-11, day-13, and day-15. The results of this research was the tetracycline residue levels in fish meat which was then analyzed using repeated ANOVA and correlative Pearson, and also using the Microsoft Excel 2010 program. Based on the research showed that the frequency of replacement of water 2 x 24 hours can slow the increase of residual level compared with replacement of water 1 x 24 hours and 1 x 48 hours. The model equation of research condition formed was  $y = -0,8264x + 8.525$ . Based on this equation, it was estimated that the replacement of the water tank 5 x 24 hours during the course of therapy (8 days) was able to reduce the residue to 0.26  $\mu\text{g/g}$ . Also, the residue level was below the maximum limit of residual level by replacing 25% of water tank 11 x 48 hours during the course of therapy. It was then concluded that the frequency of replacing 25% of water tank can slow the accumulation of tetracycline residues in tilapia meat during the course of therapy. The model equation formed can be applied for replacement of 25% water tank method in tilapia management.

**Keywords: residue, tetracycline, HPLC, water replacement, tilapia**