

Ari Sofiyanti, 2018, **Analisis Pemberian Ethinyl Estradiol Secara In Vitro Terhadap Motilitas dan Viabilitas Spermatozoa Ikan Wader (*Barbodes binotatus*)**, Skripsi ini di bawah bimbingan Dr. Alfiah Hayati dan Dr. Listiyani Suhargo, M.Si., Departemen Biologi, Fakultas Sains dan Teknologi, Universitas Airlangga, Surabaya

ABSTRAK

Ethinyl estradiol telah mencemari lingkungan perairan dan mengadakan kontak dengan spermatozoa organisme akuatik yaitu ikan. Tujuan penelitian ini adalah untuk melihat efek *ethinyl estradiol* secara *in vitro* terhadap motilitas dan viabilitas spermatozoa ikan wader (*Barbodes binotatus*). Spermatozoa dikoleksi dengan cara *stripping* kemudian dipaparkan *ethinyl estradiol* dengan konsentrasi 0; 5; 10; 15; 25; 50 IU/mL kemudian dilakukan pengamatan mikroskopis untuk parameter durasi motilitas massa, durasi motilitas individu, kecepatan motilitas individu, dan viabilitas spermatozoa. *Ethinyl estradiol* menurunkan durasi motilitas massa, durasi motilitas individu dan kecepatan motilitas individu mengalami penurunan signifikan pada konsentrasi 5 IU/mL dan terus menurun hingga pada konsentrasi 50 IU/mL. Viabilitas spermatozoa menunjukkan penurunan signifikan pada konsentrasi 10 IU/mL, sedangkan pada 5 IU/mL tidak menunjukkan penurunan yang signifikan. Viabilitas spermatozoa terus menurun seiring peningkatan konsentrasi *ethinyl estradiol* hingga 50 IU/mL. Hasil ini menunjukkan bahwa *ethinyl estradiol* berefek menurunkan motilitas dan viabilitas spermatozoa. Penelitian ini diharapkan menjadi acuan bagi masyarakat untuk menampung dan mengolah limbah yang mengandung *ethinyl estradiol* agar dapat didegradasi sehingga tidak mencemari lingkungan perairan.

Kata Kunci: *ethinyl estradiol*, motilitas, viabilitas, spermatozoa

Ari Sofiyanti, 2018, **Analysis of Ethinyl Estradiol In Vitro Exposure on Motility and Viability Wader Fish (*Barbodes binotatus*) Sperm.**, this study was under the guidance of Dr. Alfiah Hayati and Dr. Listiyani Suhargo, M.Si., Department of Biology, Faculty of Science and Technology, Airlangga University, Surabaya

ABSTRACT

Aquatic ecosystem has been contaminated by ethinyl estradiol and interacted with spermatozoa of aquatic organism. The present study aims to observe the effect of in vitro toxicity of ethinyl estradiol on the quality of spermatozoa in *Barbodes Binotatus*. *Barbodes binotatus* spermatozoa were collected by the stripping method, then they were exposed to ethinyl estradiol at 0; 5; 10; 15; 25; 50 IU/mL. Furthermore, the spermatozoa quality parameters, including mass and individual duration of sperm motility (second), sperm velocity ($\mu\text{m/s}$), and its viability (%) were measured by using light microscope. The results showed that ethinyl estradiol can influence sperm quality parameters of *Barbodes Binotatus* negatively which may significantly reduce the mass duration motility at 5 IU/mL, reduce the individual duration of motility and velocity rate at 5 IU/mL, and continue to decrease until concentration of 50 IU/mL. The sperm viability shows a significant decrease at 10 IU/mL, while there was not any significant decrease at 5 IU/mL. The sperm viability continues to decline along with an increase of ethinyl estradiol concentration until 50 IU/mL. It indicates that ethinyl estradiol reduces motility and viability of spermatozoa. This study is expected to be a reference for the community to retain and degraded the wastes which contain ethinyl estradiol to reduce contamination in the aquatic ecosystem.

Key words: ethinyl estradiol, motility, viability, sperm