ABSTRAK

Limbah cair batik di Giriloyo mengandung zat warna sintesis, logam berat, zat organik, dan padatan tersuspensi yang memiliki potensi merusak lingkungan apabila tidak dilakukan pengolahan terlebih dahulu. Penelitian ini bertujuan untuk mengkaji efektivitas pengolahan limbah cair batik menggunakan ekoenzim dan *Pistia stratiotes* (L.) di Sentra Batik Giriloyo, menganalisis pengaruh pengolahan limbah cair batik menggunakan ekoenzim dan *Pistia stratiotes* (L.) terhadap pertumbuhan dan kondisi fisiologi *Pistia stratiotes* (L.), mengkaji persepsi masyarakat di Sentra Batik Giriloyo terhadap pengolahan limbah cair batik menggunakan ekoenzim dan *Pistia stratiotes* (L.).

Metode yang digunakan adalah eksperimen dengan RAL dan survei. Perlakuan mencakup antara variasi volume ekoenzim (10 ml, 20 ml) dan biomassa kayu apu (50 g, 60 g). Parameter kualitas air yang dianalisis meliputi BOD, COD, TDS, TSS, krom total, pH, suhu, dan warna. Pertumbuhan *Pistia stratiotes* (L.) yang diamati meliputi pengukuran berat basah dan kering serta pengamatan warna daun. Pengetahuan masyarakat dikaji melalui wawancara dan kuesioner.

Hasil penelitian menunjukkan bahwa efektivitas variasi ekoenzim dan *Pistia stratiotes* (L.) sebagai agen remediasi limbah cair batik mengalami penurunan pada parameter BOD sebesar 72-90%, COD sebesar 78-93%, TDS sebesar 74-85%, TSS sebesar 68-86%, dan pH menjadi netral. Parameter suhu dan warna meningkat. Tidak terjadi penurunan krom total. Perlakuan *Pistia stratiotes* (L.) 60 gram memberikan efektivitas penurunan paling tinggi. Tanaman *Pistia stratiotes* (L.) diaplikasikan selama 9 hari masih hidup, meskipun menunjukkan perubahan warna daun menjadi menguning dan peningkatan biomassa tanaman. Pengetahuan masyarakat di Sentra Batik Giriloyo terkait pengolahan limbah cair batik menggunakan ekoenzim dan *Pistia stratiotes* (L.) masih sangat terbatas.

Kata kunci : Giriloyo, limbah cair batik, remediasi, ekoenzim, *Pistia stratiotes* (L.).

ABSTRACT

Batik wastewater in Giriloyo contains synthetic dyes, heavy metals, organic substances, and suspended solids that have the potential to damage the environment if not treated first. This study aims to examine the effectiveness of treating batik wastewater using ecoenzymes and *Pistia stratiotes* (L.) at the Giriloyo Batik Center, analyze the effect of batik wastewater treatment using ecoenzymes and *Pistia stratiotes* (L.) on the growth and physiological condition of *Pistia stratiotes* (L.), and examine the perception of the community at the Giriloyo Batik Center regarding batik wastewater treatment using ecoenzymes and Pistia stratiotes (L.).

The methods used were experiments with RAL and surveys. The treatments included variations in ecoenzyme volume (10 ml, 20 ml) and water hyacinth biomass (50 g, 60 g). The water quality parameters analyzed included BOD, COD, TDS, TSS, total chromium, pH, temperature, and color. The growth of *Pistia stratiotes* (L.) observed included measurements of wet and dry weight and observation of leaf color. Community knowledge was assessed through interviews and questionnaires.

The results showed that the effectiveness of the ecoenzyme and *Pistia stratiotes* (L.) variations as batik wastewater remediation agents decreased in the parameters of BOD by 72-90%, COD by 78-93%, TDS by 74-85%, TSS by 68-86%, and pH to neutral. The temperature and color parameters increased. There was no decrease in total chromium. Treatment with 60 grams of *Pistia stratiotes* (L.) provided the highest reduction effectiveness. The *Pistia stratiotes* (L.) plants applied for 9 days were still alive, although they showed a change in leaf color to yellow and an increase in plant biomass. The knowledge of the community in the Giriloyo Batik Center regarding the treatment of batik wastewater using ecoenzymes and *Pistia stratiotes* (L.) is still very limited.

Keywords: Giriloyo, batik wastewater, remediation, eco-enzyme, *Pistia stratiotes* (L.).