ABSTRAK

Ambar Kurnia Sari, 2026. *Penyusunan Monograf Berbasis Riset Isolasi dan Karakterisasi Kapang dari Reaktor Biogas Tipe Fixed Dome*. Skripsi. Program Studi Pendidikan Biologi, Fakultas Keguruan dan Ilmu Pendidikan, Universitas PGRI Madiun. Pembimbing (I) Dr. Pujiati, S.Si., M.Si., (II) Drs. R Bekti Kiswardianta, M.Pd.

Terbatasnya bahan ajar biologi berbasis riset lapangan, khususnya mengenai mikroorganisme lingkungan pada sistem teknologi terapan seperti reaktor biogas, mendorong perlunya monograf berbasis riset sebagai sumber belajar yang lebih kontekstual. Penelitian ini bertujuan (1) menyusun monograf berbasis riset hasil analisis kapang dari slurry reaktor biogas tipe fixed dome, dan (2) mendeskripsikan karakteristik morfologi koloni kapang yang diisolasi. Penelitian ini bersifat deskriptif eksploratif. Sampel slurry diambil secara purposive dari satu reaktor biogas tipe fixed dome di Desa Jabung, Kabupaten Magetan, lalu dianalisis melalui isolasi kapang dengan metode kultur pada media PDA, pengamatan makroskopis, dan identifikasi mikroskopis menggunakan mikroskop cahaya. Kelayakan monograf divalidasi oleh ahli materi menggunakan lembar validasi berskala 1–4. Hasil penelitian menunjukkan monograf berhasil disusun dengan persentase kelayakan 93,75% (sangat valid). Hasil isolasi memperoleh sepuluh isolat kapang (K1–K10) dengan keragaman bentuk, warna, dan tekstur koloni, yang teridentifikasi ke dalam tujuh genus: *Aspergillus*, *Fusarium*, *Penicillium*, *Rhizopus*, *Curvularia*, *Mucor*, dan *Lichtheimia*, mengindikasikan komunitas kapang kulturabel yang cukup tinggi pada reaktor biogas fixed dome.

Kata Kunci: monograf berbasis riset, kapang, reaktor biogas fixed dome, karakterisasi morfologi.

ABSTRACT

Ambar Kurnia Sari, 2026. *Development of a Research-Based Monograph on the Isolation and Characterization of Molds from a Fixed Dome Biogas Reactor*. Undergraduate Thesis. Biology Education Study Program, Faculty of Teacher Training and Education, Universitas PGRI Madiun. Advisor (I) Dr. Pujiati, S.Si., M.Si., (II) Drs. R Bekti Kiswardianta, M.Pd.

The limited availability of biology teaching materials based on field research, particularly on environmental microorganisms in applied technological systems such as biogas reactors, highlights the need for a research-based monograph as a more contextual learning resource. This study aimed to (1) develop a research-based monograph from the analysis of molds isolated from the slurry of a fixed dome biogas reactor, and (2) describe the morphological characteristics of the isolated mold colonies. This study employed a descriptive-exploratory design. Slurry samples were purposively collected from a single fixed dome biogas reactor in Jabung Village, Magetan Regency, then analyzed through culture-based mold isolation on PDA media, macroscopic observation, and microscopic identification using a light microscope. The feasibility of the monograph was validated by a subject-matter expert using a validation sheet with a 1–4 scale. The results showed that the monograph was successfully developed with a feasibility score of 93.75% (highly valid). Ten mold isolates (K1–K10) were obtained, showing variation in colony shape, color, and texture, which were identified into seven genera: *Aspergillus*, *Fusarium*, *Penicillium*, *Rhizopus*, *Curvularia*, *Mucor*, and *Lichtheimia*, indicating a fairly high culturable mold community within the fixed dome biogas reactor.

Keywords: research-based monograph, molds, fixed dome biogas reactor, morphological characterization