

ABSTRAK

Limbah cair tahu merupakan limbah organik yang berpotensi mencemari lingkungan apabila tidak dikelola dengan baik. Penelitian ini bertujuan untuk mengkaji kelayakan bisnis pengolahan limbah cair tahu menjadi pupuk organik cair dengan studi kasus pada UD Gangsar di Kabupaten Jombang. Metode yang digunakan meliputi pendekatan studi kelayakan bisnis dari empat aspek utama, yaitu teknis, finansial, pemasaran, dan lingkungan, serta dilengkapi dengan analisis sensitivitas. Proses produksi pupuk dilakukan dengan metode fermentasi selama 14 hari menggunakan bahan tambahan berupa EM4, air kelapa, gula merah, dan tepung tulang. Hasil uji laboratorium menunjukkan bahwa pupuk yang dihasilkan memiliki kandungan C-organik sebesar 10,04%, total unsur hara (NPK) sebesar 3,1%, dan pH sebesar 6, yang telah memenuhi standar mutu berdasarkan Keputusan Menteri Pertanian Republik Indonesia Nomor 261/KPTS/SR.310/M/4/2019. Dari aspek finansial, usaha dinyatakan layak dengan nilai *Net Present Value* (NPV) sebesar Rp.88.981.677,93, *Internal Rate of Return* (IRR) sebesar 32%, dan *Payback Period* selama 2,53 bulan. Analisis sensitivitas juga menunjukkan usaha tetap layak meskipun terjadi kenaikan suku bunga hingga 30%, dengan NPV yang masih positif. Dari aspek lingkungan, terjadi penurunan kadar BOD, COD, dan TSS, serta peningkatan pH limbah ke arah netral. Berdasarkan keempat aspek tersebut, pengolahan limbah cair tahu menjadi pupuk organik cair dinyatakan layak untuk dikembangkan sebagai usaha yang ramah lingkungan, bernilai ekonomi, dan berkelanjutan.

Kata kunci: limbah cair tahu, pupuk organik cair, studi kelayakan, fermentasi

ABSTRACT

Tofu wastewater is an organic waste that has the potential to pollute the environment if not properly managed. This study aims to assess the business feasibility of processing tofu wastewater into liquid organic fertilizer, with a case study conducted at UD Gangsar in Jombang Regency. The method used includes a business feasibility analysis based on four main aspects: technical, financial, marketing, and environmental, along with a sensitivity analysis. The fertilizer production process was carried out through a 14-day fermentation using additional materials such as EM4, coconut water, palm sugar, and bone meal. Laboratory test results indicated that the fertilizer produced contains 10.04% organic carbon (C-organic), 3.1% total nutrients (NPK), and has a pH of 6, which complies with the quality standards established in the Decree of the Minister of Agriculture of the Republic of Indonesia No. 261/KPTS/SR.310/M/4/2019. From the financial aspect, the business is considered feasible with a Net Present Value (NPV) of IDR 88,981,677.93, an Internal Rate of Return (IRR) of 32%, and a Payback Period of 2.53 months. The sensitivity analysis further supports feasibility even with a discount rate increase to 30%, as the NPV remains positive. Environmentally, the process reduced levels of BOD, COD, and TSS, and improved the pH of the wastewater toward neutral. Based on these four aspects, the processing of tofu wastewater into liquid organic fertilizer is considered feasible to be developed as an environmentally friendly, economically valuable, and sustainable business.

Keywords: tofu wastewater, liquid organic fertilizer, feasibility study, fermentation