

SUMMARY

Batik is one of the richness in Indonesian culture that has high artistic value. Batik wastewater also contains heavy metals that endanger for the biota in water ecosystem. In the manufacture of batik, from the initial process until the process until the end of process is indicated using chemicals that containing heavy metals. Heavy metals such as chromium (Cr) come from some batik dye and comes from the final washing process of batik. If the waste material containing heavy metals is not treated properly, then the waste material can pollute the environment. According to the Minister of Environment Regulation No. 5 Year 2014 on the Standard of Wastewater Quality, explaining that Cr is the one of the parameter in the textile waste quality standard. To overcome these problems, an alternative method using biological agent is fungus microorganisms such as *Aspergillus* sp., *Penicillium* sp., and *Phanerochaeta chrysosporium* as positive control. This research aim are to find out the ability of fungi to decreasing percentage of Cr level in red indigosol batik dye in different incubation period, and to determine the optimum fungus (*Aspergillus* sp., *Penicillium* sp., and *P.chrysosporium*) to remove Cr in red indigosol batik dye in different incubation period.

This research used experimental method with Completely Randomized Design (CRD) with 9 treatments. The treatments using 3 species of fungi (*Aspergillus* sp., *Penicillium* sp., and *P.chrysosporium*) and 3 different incubation period in 3rd days, 5th days, and 7th days, with 3 repetition, thus the total of 27 units were tested. Obtain the data of Cr contain was analysis using Atomic Absorption Spectrophotometry (AAS) and the optimum result was analysis using microscope to seen the mycelia's cell morphology, and analyzed using analysis of variance test. The treatment that significantly or highly significantly was then analyzed further with Tukey Honest Significant Different (HSD) at error level 5%. Based on the results of the study showed that the treatment on 5th days incubation period by *Penicillium* sp. was higher than the other treatment. The ability of *Penicillium* sp. to reduce Cr levels in red indigosol batik dye has a yield up to 82.05%.

Keywords: *Penicillium* sp., Chromium, Red Indigosol.