Available online at www.sciencedirect.com

ScienceDirect

Aquatic Procedia 7 (2016) 76 – 84

Aquatic Procedia

www.elsevier.com/locate/procedia

2nd International Symposium on Aquatic Products Processing and Health, ISAPPROSH 2015

Isolation and Characterization of Collagenase from *Bacillus subtilis* (Ehrenberg, 1835); ATCC 6633 for Degrading Fish Skin Collagen Waste from Cirata Reservoir, Indonesia

Emma Rochima[a]*, Nadia Sekar[a] , Ibnu Dwi Buwono[b], Eddy Afrianto[a], Rusky Intan Pratama[a]

[a] *Laboratorium of Fisheries Processing Technology,* [b] *Laboratorium of Aquatic Biotechnology, Faculty of Fisheries and Marine Science, Padjadjaran University, Jl. Raya Bandung-Sumedang, Jatinangor 45363, West Java, Indonesia*

Abstract

The objective of this research was to isolate and characterize collagenase from *Bacillus subtilis* ATCC 6633 collection of Microbiology Laboratory, Department Pharmacy Biology, Faculty Pharmacy Padjadjaran University. The substrate collagen derived of Tilapia fish skin waste from Cirata Reservoar which has'nt exploited fully yet. The experimental design used and the data analysed descriptively. Collagen as substrate from Tilapia skin waste had extracted by Yuniarti (2010) method in Luria Broth media. The production time of collagenase used Rahmayanti (2014) methods which incubated the isolate for 24 hours and the OD of absorbances from 0.2 to 0.8 evaluated. The effect of temperature on collagenase activity evaluated by temperature from 20 to 70^{o}C. The effect of pH collagenase activity evaluated pH from 5 to 10. The conclusion of the research that *B. subtilis* ATCC 6633 has colagenolitik activity showed by the clear zone in the Luria media. The optimum production time of collagenase was 24 h of incubation. Collagenase activity reached the optimum temperature was 50 ° C (1,298 Unit mL^{-1}), while the pH optimum collagenase obtained in the range of 7-9 (from 1.298 Unit mL^{-1} to 1,321 U mL^{-1}.

Peer-review under responsibility of the science and editorial board of ISAPPROSH 2015

Keywords: Bacillus subtilis (Ehrenberg, 1835); Cirata; collagenase; reservoir.

* Corresponding author. Tel.: +62 817 924 4109.
E-mail address: Emma.Rochima@gmail.com

Peer-review under responsibility of the science and editorial board of ISAPPROSH 2015
doi:10.1016/j.aqpro.2016.07.010