ABSTRACT

OPTIMIZATION OF FERMENTATION TIME TO PRODUCE TROMBOLYTIC AGENT OF *Bacillus Subtilis* ATCC 6633 USING ADDITION *Centella asiatica* SUBSTRAT

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Background : Thrombolytic agents are fibrinolytic enzymes that can be used as therapy for cardiovascular disease. Thrombolytic agents can be found from plants such as Centella asiatica dan from bacteria such as Bacillus subtilis ATCC 6633. Both sources of these thrombolytic agents can be combined by fermentation. Fermentation can be influenced by factors of fermentation time dan temperature. **Objective** : This study aimed to determine the optimum fermentation time to produce maximum thrombolytic activity of the fermented product *Centella asiatica* by *Bacillus subtilis* ATCC 6633. **Methods :** Fermentation was carried out with variations in incubation time 0, 24, 48 dan 72 hours at a temperature 30±1 °C. Meanwhile, the thrombolytic activity was tested by *clot lysis* using jugular venous blood of cow which was incubated at 37±1°C for 60 minutes with a positive control of nattokinase**. Results :** The maximum thrombolytic activity was found in the fermented product for 24 hours with a thrombolytic index of 85.52 ± 0.14. This result was greater than thrombolytic index of *Bacillus subtilis* ATCC 6633 (43.99 ± 1.73) and *Centella asiatica* (66.35 ± 0.42). **Conclusion :** There is an effect of fermentation time to increase thrombolytic activity of fermented *Centella asiatica* by *Bacillus subtilis* ATCC 6633 when compared to the results without fermentation.

Keywords : Thrombolytic, *Centella asiatica*, *Bacillus subtilis* ATCC 6633, Fermentation, Time