

## INTISARI

**VERDY MANGARAH SAMALUDIN NAPITUPULU, 2021, AKTIVITAS EKSTRAK ENZIM BUAH MENTIMUN (*Cucumis sativus* L.) SEBAGAI AGEN FIBRINOLITIK DENGAN METODE *CLOT LYSIS* SECARA *IN VITRO*, SKRIPSI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI SURAKARTA, Dibimbing oleh Dr. Ana Indrayati, S.Si., M.Si., dan apt. Ghani Nurfiana F. S., S.Farm., M.Farm.**

Infark miokard akut (IMA) merupakan penyakit akibat sumbatan bekuan darah (trombus) pada arteri koroner yang menyebabkan aliran darah dan distribusi oksigen terhambat. Agen fibrinolitik berperan dalam degradasi fibrin secara enzimatik dan berfungsi membebaskan pembuluh dari bekuan darah. Enzim fibrinolitik dapat dihasilkan dari tanaman salah satunya yaitu berasal dari tanaman mentimun. Penelitian ini bertujuan untuk mengetahui potensi ekstrak enzim buah mentimun (*Cucumis sativus* L.) dan mengetahui konsentrasi yang paling efektif sebagai agen fibrinolitik secara *in vitro*.

Penelitian diawali dengan determinasi tanaman buah mentimun (*Cucumis sativus* L.) pengambilan bahan, ekstraksi enzim buah mentimun, pemurnian ekstrak enzim buah mentimun dengan pengendapan ammonium sulfat 55% (pelet pemurnian enzim ke-1), pemurnian enzim buah mentimun dengan TCA dan aseton (pelet pemurnian enzim ke-2), penetapan kadar protein metode Lowry dan uji potensi fibrinolitik dengan metode *clot lysis* secara *in vitro*. Konsentrasi ekstrak dibuat dalam tiga variasi yaitu 20, 40, dan 80%.

Ekstrak enzim buah mentimun pada pengujian kadar protein dengan metode Lowry mendapatkan hasil adalah 1,260 µg/mL untuk pelet pemurnian enzim ke-1; 2,305 µg/mL untuk pelet pemurnian ke-2; dan 0,831 µg/mL untuk enzim kasar sedangkan konsentrasi yang efektif, yaitu 80% memiliki potensi yang optimal sebagai agen fibrinolitik. Sampel pelet pemurnian enzim ke-1 80% (47%), pelet pemurnian enzim ke-2 (81%), dan sampel ekstrak kasar (82%). Sampel pelet pemurnian enzim ke-2 pada konsentrasi 80% memiliki potensi yang optimal sebagai agen fibrinolitik secara *in vitro*.

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Kata kunci : *Cucumis sativus* L., agen fibrinolitik, Infark miokard akut (IMA), metode *Clot lysis*.

## ABSTRACT

**NAPITUPULU, VERDY MS., 2021, CUCUMBER ENZYME EXTRACT ACTIVITY (*Cucumis sativus* L.) AS A FIBRINOLYTIC AGENT WITH CLOT LYSIS METHOD IN VITRO, THESIS, FACULTY OF PHARMACY, SETIA BUDI UNIVERSITY SURAKARTA, Guided by Dr. Ana Indrayati, S.Si., M.Si., and apt. Ghani Nurfiana F. S., S.Farm., M.Farm.**

Acute myocardial infarction (IMA) is a disease caused by a blockage of a blood clot (thrombus) in the coronary arteries that causes blood flow and oxygen distribution to be blocked. The Ministry of Health in 2018 stated that as many as 7,200,000 patients died from IMA worldwide. Fibrinolytic agents play an enzymatic degradation of fibrin and serve to free the vessels from blood clots. Fibrinolytic enzymes can be produced from plants, one of which is derived from cucumber plants. The study aimed to find out the potency of cucumber enzyme extract (*Cucumis sativus* L.) and find out the most effective concentrations as fibrinolytic agents *in vitro*.

The research began with the determination of the cucumber fruit plant (*Cucumis sativus* L.), the retrieval of ingredients, the extraction of cucumber enzymes, the purification of cucumber enzyme extract with the deposition of ammonium sulfate 60% (1st enzyme purification pellet), purification of cucumber enzymes with TCA or acetone (2nd enzyme purification pellet), determination of Lowry method protein levels and fibrinolytic potential test with clot lysis method *in vitro*. The concentration of extracts will be made in three variations namely 20, 40, and 80%.

Cucumber enzyme extracts in protein levels testing by Lowry method get results are 1,260 µg/mL for 1st enzyme purification pellets; 2.305 µg/mL for 2nd purification pellets; and 0.831 µg/mL for coarse enzymes while effective concentrations, i.e. 80% have optimal potential as fibrinolytic agents. 1st enzyme purification pellet samples 80% (47%), 2nd enzyme purification pellets (81%), and coarse extract samples (82%). Samples of the 2nd enzyme purification pellet at a concentration of 80% have optimal potential as a fibrinolytic agent *in vitro*.

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Keywords: *Cucumis sativus* L., fibrinolytic agent, IMA, *clot lysis* method