

The Angiotensin-I Converting Enzyme Inhibitor of Indonesia Herbs that may Benefit for Antihypertension Therapy

Dian Laila Purwaningroom¹, Widodo², Sholihatul Maghfirah¹, Dianita Rifqia Putri¹,
Siti Munawaroh¹, Cholik Harun Rosjidi¹, Muhaimin Rifa'i²

¹Nursing Department, Faculty of Health Science, Universitas Muhammadiyah Ponorogo,
Ponorogo, East Java, Indonesia

²Biology Department, Faculty of Mathematics and Natural Sciences. Brawijaya University,
Malang, East Java, Indonesia

Corresponding Author: Prof. Widodo., Biology Department, Faculty of Mathematics and Natural Sciences.
Brawijaya University. Jl. Veteran, Malang Indonesia. Email: widodo@ub.ac.id

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Background:

Indonesia has high biodiversity, and some of them has been used for traditional medicine. The fruit of Noni (*Morinda citrifolia*), Watermelon (*Citrullus lanatus*), and Cantaloupe (*Cucumis melo*) traditionally have been employed as a functional food for hypertension therapy. However, the mechanism of the fruits as anti-hypertension is still limited. The Angiotensin-I Converting Enzyme (ACE) was a primary target of the antihypertensive drug such as captopril, lisinopril, and enalapril. However, the long-term application of the drugs may cause various side effects, such as dry cough, skin rashes, and angioedema. The other side, the pathophysiology of hypertension stimulated by oxidative stress that can lead damage to various tissues and implicate in cardiovascular disease. Therefore the ideally hypertension drug may have a dual function as reducing the blood pressure and antioxidant activity, without side effect.

AIM:

This research aims to examine the activity of ACE-inhibitor and phenol content of extracts of *Morinda citrifolia*, *Citrullus lanatus*, and *Cucumis melo*

Method:

The fruits were dried and extracted using ethanol 80%, then frozen. The dried extracts were dissolved using distilled water at a concentration of 25 ppm, 50 ppm, 100 ppm, 200 ppm, and 400 ppm, and then adjusted to pH 4. The extracts were examined activity for ACE inhibition activity using KIT-WST Dojindo according to the protocol. While the content of total phenol of the fruits was analyzed by using a spectrophotometric.

Result:

Inhibition rate on *Morinda citrifolia*, *Citrullus lanatus* and *Cucumis melo* were 23.18%, 52.44%, 52.44% (25 ppm); 30.81%, 65.06%, 74.21% (50 ppm); 61.15%, 77.66%, 81.24% (100 ppm); 83.45%, 88.15%, 80.67% (200 ppm); and 83.69%, 99.89%, 82.54% (400 ppm). The IC50 of ACE-inhibition of *Morinda citrifolia*, *Citrullus lanatus* and *Cucumis melo* were 77.29 ppm, 20.90 ppm, and 6.06 ppm, respectively; while the total phenol were 529.08 ± 2.16 mg/L, 441.33 ± 3.61 mg/L, and 294.90 ± 1.44 mg/L, respectively.

Conclusion:

This study suggested that the three fruits have activity as ACE-inhibitor and as the most potent contents the highest in *Morinda citrifolia*.

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Corresponding Author:

Prof. Widodo., Biology Department,
Faculty of Mathematics and Natural Sciences,
Brawijaya University,
Jl. Veteran, Malang Indonesia.
Email: widodo@ub.ac.id

Main Presenting Author:

Dian Laila Purwaningroom.,
Nursing Department, Faculty of Health Science,
Universitas Muhammadiyah Ponorogo,
Jl. Budi Utomo 10 Ponorogo
Jawa Timur Indonesia, 63471,
email: dianlaila@umpo.ac.id,
phone number +6281554559679

Co-authors:

Sholihatul Maghfirah, email: s.m.fira87@gmail.com
Dianita Rifqia Putri, email: rifiqiafitri@yahoo.com
Siti Munawaroh, email: munaw71@yahoo.co.id
Cholik Harun Rosjidi, email: cholikharonrosjidi@gmail.com
Prof. Muhaimin Rifa'i, email: rifa123@ub.ac.id

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