



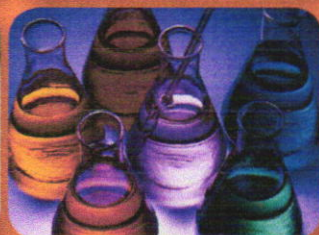
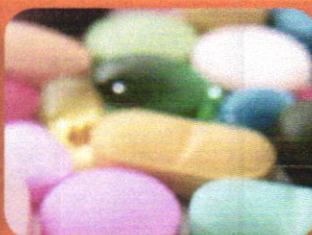
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ABSTRACT BOOK



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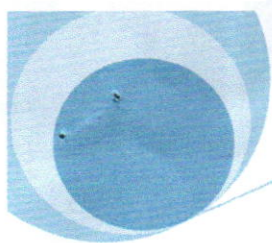
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"CULTURE & MEDICINE"
Bringing Traditional Medicine to Modern Life

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EXTRACTS ETHANOL OF *Centella asiatica* ENHANCE INTERFERON- γ AND TUMOR NECROSIS FACTOR- α IN MACROPHAGE CULTURE INFECTED BY *Mycobacterium tuberculosis*

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Mycobacterium tuberculosis has capacity to manipulate host defense pathway, particularly the ability to inhibit cellular immune response. *Centella asiatica* is a medicinal plant which able to treat inflammatory condition and infection. The aims of this research is to determine the effect of the extracts of *Centella asiatica* in enhancing interferon- γ and tumor necrosis factor- α in macrophages culture infected by *Mycobacterium tuberculosis*.

Cultured macrophages derived from monocytes were isolated from human peripheral blood vessels. Macrophages that pretreated with extracts ethanol *Centella asiatica* for 2 days were infected by *Mycobacterium tuberculosis* H₃₇Rv. After 2 hours, the cultured macrophages were washed with 2% FBS-HBSS to remove unphagocytosed bacteria. The resultant macrophages were further cultured in fresh medium (0.2 ml) at 37°C in a CO₂ incubator for up to 2 days. Interferon- γ and tumor necrosis factor- α levels were measured using ELISA method.

The result have shown that the extracts ethanol of *Centella asiatica* at 200 ppm and 400 ppm were able to enhance significantly interferon- γ and tumor necrosis factor- α . In conclusion, the extracts ethanol of *Centella asiatica* can enhance interferon- γ and tumor necrosis factor- α in macrophages culture infected by *Mycobacterium tuberculosis*.

Key words: *Centella asiatica*, *Mycobacterium tuberculosis*, Macrophages, Interferon- γ , tumor necrosis factor- α



August 03, 2012

DR. Arifa Mustika, MD.,M.Si
Airlangga University
Surabaya, Indonesia

Dear, Arifa Mustika

Congratulations!

We are pleased to announce that your **Oral** presentation entitled

**"EXTRACTS ETHANOL OF *Centella asiatica* ENHANCE INTERFERON- γ
AND TUMOR NECROSIS FACTOR- α IN MACROPHAGE CULTURE
INFECTED BY *Mycobacterium tuberculosis*"**

has been accepted to be presented at The 24th Federation of Asian Pharmaceutical Associations Congress (FAPA) in Bali, Indonesia on September 13 - 16, 2012.

Abstracts will only be published in the Abstract Book if the presenting author has registered on line and paid before 10th August 2012. Abstracts presenters who haven't registered and paid the fee before 10th August 2012 will be disqualified; these abstracts cannot be presented and will not be published.

Please note that exact details of schedule for oral presentation session will be published on FAPA Congress 2012 website at a later date.

We're looking forward to seeing you at FAPA Congress in Bali, Indonesia.

Sincerely yours,

Nurul Falah Eddy Pariang
Chairman of the Organizing Committee

Note :

1. Your abstract Number : ORT1-114
2. Your Registration Code : RH4B6X



Federation of Asian Pharmaceutical Association (FAPA)

Certificate of Participation

Awarded to :

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