

MAMMARY CANCER MODELLING: RESEARCH OF THE EFFECT OF *ANDROGRAPHIS PANICULATA* EXTRACT ON MAMMARY CARCINOMA IN THE RAT INDUCED BY DMBA

Fatihah Al Firdaus¹, Imam Susilo², Junaidi Khotib^{3,*}

¹ Undergraduate Student, Faculty of Pharmacy, Airlangga University, Jln. Dharmawangsa Dalam, Surabaya 60286, Indonesia

² Department of Pathology Anatomy, Faculty of Medicine, Airlangga University, Jln. Mayjen Prof. Dr. Moestopo No. 47, Surabaya 60286, Indonesia

³ Department of Clinical Pharmacy, Faculty of Pharmacy, Airlangga University, Jln. Dharmawangsa Dalam, Surabaya 60286, Indonesia

*) Corresponding email: joen_70@yahoo.com

It has been well documented that chemical carcinogen, DMBA (7,12-dimethylbenz(a)anthracene), plays a role in the incidence and growth of mammary cancer. The present study was designed to investigate histochemical alteration of epithelial cells of mammary gland influenced by DMBA in the female Sprague-Dawley rat. DMBA-induced mammary cancer is a useful model to investigate the changes of epithelial cells that occur during mammary cancer progression. Mammary cancer model was induced 10 times twice a week by oral DMBA 20 mg/kg body weight. Mammary cancer occurred in 90 % animals nine weeks after oral administration of DMBA, it was represented with nodule on the mammary gland and the increasing of mammary gland volume compare with normal control ($F_{(1,11)} = 100.592$; $p < 0.001$). This study was also designed to investigate the preventive and curative effect of *Andrographis paniculata* extract on mammary carcinoma induced by DMBA. Preventive administration of three different dose of *Andrographis paniculata* (100 mg/kg, 300 mg/kg and 1000 mg/kg) were all maintain mammary gland volume as good as the normal control and significantly different with mammary gland volume of DMBA treated rat ($F_{(4,36)} = 99.930$; $p < 0.001$). *Andrographis paniculata* has the preventive effect on limiting the frequency of cancer initiation and growth. However, curative administration of three different dose of *Andrographis paniculata* (100 mg/kg, 300 mg/kg and 1000 mg/kg) had no statistically different with mammary gland volume of DMBA treated rat ($F_{(4,27)} = 2.239$; $p > 0.05$). So, *Andrographis paniculata* has no significant effect on the treatment of DMBA-induced mammary carcinoma. The Epithelial cell were harvested on day 90 and stained on routine histology staining, hematoxylineosin, for morphological qualitative analysis. The lesions observed from the removed samples ranged widely from benign to malignant. The results showed that DMBA induce cell proliferation, nuclear irregularities, numerous mitoses and induced cell necrosis. Preventive effect of *Andrographis paniculata* inhibit cell proliferation. Curative effect of *Andrographis paniculata* induce apoptosis in cancer cells. Finally, we hope that the research will provide some clues towards early detection and, hopefully, prevention and treatment of breast cancer.

Keyword(s) : DMBA, breast cancer, epithelial cells, *Andrographis paniculata*

Second Collaborative Conference

Life Science :
**SYNERGY FOR ENHANCEMENT OF
QUALITY OF LIFE**

**UNIVERSITAS AIRLANGGA, INDONESIA
10-11th FEBRUARY 2009**

**PROGRAMME
and
ABSTRACT BOOK**



UNIVERSITAS AIRLANGGA



USM

UNIVERSITI SAINS MALAYSIA



Welcome Message

MESSAGE FROM THE RECTOR OF AIRLANGGA UNIVERSITY

Assalamu'alaikum warahmatullahi wabarakatuh

Praised be to Allah swt for His love and compassion that we all are given the opportunity to gather and meet in the second collaborative conference held at Airlangga University, Surabaya, East Java, Indonesia.

It was two years ago that we all gathered in a conference and discussed various scientific research results at USM, Malaysia. After a successful and meaningful achievements, we then decided to continue our collaborative research activities which all of us believe will give benefits to people throughout the world.

The decision in maintaining such collaborative activities is important in building relationship among us and all nations in the era of globalization. It is through internationalization of all aspects, which include economy and communications, all of us are able to survive and win the competition in the globalization era. Internationalization itself is a process of integrating an international perspective into a college or university system. Such perspective will ensure us to achieve international standards, maintain competitiveness and appreciate the ethnic and cultural diversity of one's nation.

More over, this conference provides a great opportunity for educators and researchers to build better communications. A better communication in a college or university is one of the best ways to share experiences on various issues which could enhance the future performance of university graduates.

I believe, that all we have been doing will, Insya Allah, contribute to the synergy of the development of life sciences for the enhancement of the quality of life.

In this special event, allow me to acknowledge all participants of the conference, that Airlangga University is greatly honored to be chosen as the host of this important gathering.

May I take this opportunity to thank all of you for coming to the conference and hope that this is a fruitful and enjoyable experience.

I thank the organizing committee for a wonderful work that make the conference a success.

Lastly, I wish all of you a good time during your stay in Surabaya.

Wassalamu'alaikum warahmatullahi wabarakatuh

With my best regards,

Prof. Dr. H. Fasich Apt.
Rector

MESSAGE FROM THE CHAIRMAN OF THE ORGANIZING COMMITTEE

It is a great pleasure for me, on behalf of all the members of the Organizing Committee, to welcome all participants to The Second Unair-USM Collaborative Conference. For the foreign guests, I would also welcome you to Surabaya, the city of heroes, and to Airlangga University, the oldest state university in Surabaya.

In June 2007, the First USM-Unair Collaborative Conference had been successfully held in USM Campus, Penang Island. At that time, scientists from USM and Unair met and discussed their findings, mostly in the area of biotechnology and pharmaceutical sciences. In this Second Unair-USM Collaborative Conference, the scientific scope is expanded to life sciences. Hopefully, more scientists will contribute to this conference, and research collaboration between the two universities will also expand from biotechnology and pharmaceutical sciences to the other areas of life sciences.

I believe that during this conference, scientists of both universities will discuss not only their recent scientific findings but also how to maintain or to make new collaborations in research and other academic activities. Such collaboration will synergize the potency of both universities to work together to achieve our goal: enhancement of quality of life.

Besides expanding the scientific scope to life sciences, we also decided to open the conference to participants from other Malaysian and Indonesian universities. I believe scientists from other universities will also give fruitful contribution to this conference.

Last but not least, I would like to express my gratitude to Professor Fasich, Rector of Airlangga University, for appointing me as the chairman of Organizing Committee of this prestigious collaborative conference.

Best wishes for a fruitful conference.

Dr. Marcellino Rudyanto
Chairman Of Organizing Committee

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MESSAGE USM REPRESENTATIVE ORGANIZING COMMITTEE

It is indeed an honor for me as chairperson for Malaysia delegates from Universiti Sains Malaysia and few other places to be in UNAIR to celebrate and participate in the Second Collaborative Conference between the two Universities.

This conference is one of the many activities that are planned between the universities to improve our collaboration in research, education and other social activity that create awareness among the community regarding healthcare issues. School of Pharmaceutical Sciences USM, for instant has taken steps to strengthen the community contribution by having "Farmasi Peduli Desa" last year together with our partner, UNAIR.

This kind of collaboration will definitely improve our understanding regarding healthcare among the unfortunate one. This year, the students and staff exchange program, collaborating research and new finding in pharmaceutical areas, biology and technology industry will shift us into another paradigm for improvement. This conference, for instant will gather man staff and postgraduate students in various fields to present their finding and hoping by having all this elements new dimension of research and education will be created for betterment of human needs.

We also need to amplify our role in educating community regarding sustainability in health and promotes better way of living in this new era of hunger and damaging world. By adopting the blue ocean strategy, sustainability will be part of our culture. I sincerely hope that both universities will lead in sustainability in Pharmaceutical Care, Biological and Industrial Technology research and manufacturing in this region as we strongly believe in protecting our future, the future of our generation which also equates to the future of this dying planet. Last but not least once again I must commend the effort and enthusiasm of faculty members of UNAIR in making this event a success conference. We will meet again next year in Penang, Malaysia.

Best regards,

Prof. Dr. Syed Azhar Syed Sulaiman
Chairman Of Malaysia Delegates.

UNAIR-USM SECOND COLLABORATIVE CONFERENCE LIFE SCIENCE : SYNERGY FOR ENHANCEMENT OF QUALITY OF LIFE

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