PROCEEDING

international seminar

STRATEGY TO MANAGE BIO-ECO-HEALTH SYSTEM FOR STABILIZING ANIMAL HEALTH & PRODUCTIVITY TO SUPPORT PUBLIC HEALTH

Surabaya-Indonesia, 19-20 June 2012
JW Marriott Hotel Surabaya

EDITORS:
Michael P. Ward (Australia)
Faouzi Kechrid (Africa)
Montip Gettayacamin (Thailand)
Fedik Abdul Rantam (Indonesia)
Suzanita Utama (Indonesia)

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Assalamu'alaikum warahmatullahi wabarakatuh

Praised be to Allah SWT for His love and compassion that today we all gather for an important and interesting international seminar on healthy animal management system.

As we all aware, up to the present time, the world is still struggling to overcome various zoonotic diseases that have been threatening human being all over the world for centuries. Through the development of modern information and technology, we also know that those diseases weaken and decrease human quality of life sooner or later.

Therefore, concern over the problem is needed, especially in the region where people live below poverty line. As nothing can be expected from a nation with low quality of human life, it is about time for us to work hand-in hand to eradicate and prevent the outbreak of all kinds of diseases. Also, every human being is in need of good quality of domestic animals which provide plenty of protein for healthy people.

Time has come for all parties, including institutions of science to recognize the essential link between human, domestic animals and wildlife health, and the threat disease poses to people, their food supplies and economies, the biodiversity essential to maintaining the healthy environments and functioning the ecosystems.

I belief and hope that today’s seminar will be able to strengthen our collaborations and networking, as an important step in reaching a safe and healthy life.

To all participants, I would like to thank you for making this seminar a success and the organizing committee for a wonderful work.

Thank you very much.

Wassalamu’alaikum warahmatullahi wabarakatuh.
MESSAGES

PROF. HJ. ROMZIAH SIDIK, PH.D., DVM.
Dean of the Faculty of Veterinary Medicine
Universitas Airlangga, Surabaya - Indonesia

Assalamu'alaikum warahmatullahi wabarakatuh

Dear Sir/Madam

On behalf of Organizing Committee the International Seminar entitled “STRATEGY TO MANAGE BIO-ECO-HEALTH SYSTEM FOR STABILIZING ANIMAL HEALTH AND PRODUCTIVITY TO SUPPORT PUBLIC HEALTH”, I would like to say thank you to the honorable: Rector Airlangga University, The Chairman of Academic Senate-Airlangga University, East Java Governor, Director General Animal Health and Husbandry-Indonesia, Chairman Bank Rakyat Malaysia, President of World Veterinary Association, President of Indonesian Veterinary School Association, President of Indonesian Veterinary Medicine School Association, Chairman of Animal Husbandry-East Java Province and Surabaya City. And also to all our special guest: The Dean VetAgro Sup Nationale Veterinary School of Lyon from France, The Chairman of Veterinary Public Health and Food Safety The University of Sydney Australia, Former Dean School of Animal and Veterinary Sciences – Faculty of Sciences The University of Adelaide Australia, Representatives Envoy School of Veterinary and Biomedical Sciences Murdoch University Australia, Former Dean Institute of Veterinary – Animal and Biomedical Science Colleges of Sciences Massey University, Regional Director for Southeast Asia, AAALAC International, Chairman of Animal BSL – 3 Airlangga University, and all best colleague the Deans of Veterinary Schools in Indonesia (Institute Pertanian Bogor, Gajah Mada University, Universitas Airlangga, Udayana University, Syahkuila University, Brawijaya University, HasanudinUniversity. University Nusa Cendana, University Wijayakusuma and University of Nusa Tenggara Barat), also the Deans comes from the other Faculty of Universitas Airlangga. I also would like to say thank you to the partnership Institutions and Industries, and I proudly to all the academic staffs and students and guest participants.

Welcome to the event in Surabaya, the city which located in East Java province. As one of Indonesia’s leading prefectural capital, Surabaya is keenly aware of the need to promote into a cosmopolitan city. East Java is settled between two world class tourist destinations, Jogjakarta and Bali. East Java, a province rich of tropical sights and cultural heritage is easily fitted to your journey from Jogjakarta to Bali. As natural lovers would expect an agritourism, the smoking volcano “Mt. Bromo” and the “G-Land” as a surfer paradise are the East Java’s breathtaking tourist attractions that should not be missed. East Java also have several National Park that protected bulls (Bos javanicus) and turtles (Chelonians), and the specific centre of commodities livestock, as a plan in the future will promote Timorensis deer as a potential meat animal product. For art lovers special dance, you can see the magical dance
of Reog Ponorogo. We are pleased to introduce you these tourism objects of splendidous, scenic and cultural. The best to know this spectacular East Java is to come and see yourself.

I am very great pleasure for your attended to the International Seminar that hosted by Faculty of Veterinary Medicine, Airlangga University. It because of the God bless and love to us, therefore we could arranged the peach among Veterinary School in Asia region and in the World for Strengthen and Establishment, Benchmarking and branding our Veterinary School by global link.

Alhamdulillahi robbal 'alamin, thank you so much for The God.

During these two days, the event programs include four main programs, such as plenary lectures, the scientific paper session, International Standardization Veterinary Scholl Curriculum base on OIE recommendation with possibly to arrange Twinning and Double Degree Study Program with France, New Zealand and Australia Veterinary School, and to construct Indonesian Veterinary Medicine Council supported by Indonesian Veterinary School Association and Stake Holders. We hope all of you could follow the programs by pleased, savor and it will be beneficial for us.

In this moment, I would like to say thank you to:

Chairman of Indonesia-Managing Higher Education Relevance and Efficiency (IM-HERE) Project-Sub Component B.2.c. Performance Based Contract for supporting and funding the International Seminar.

Rector of Universitas Airlangga for supporting and funding the International Seminar based on Annual Budgeting Plan 2012 of Airlangga University.

The sponsorships that supporting to the event.

All Keynote speakers and invited speakers.

All participants.

Finally, thank you very much for all the distinguish guest for your kindly and closely to all the participants, please have a nice time to enroll the event.

Thank you very much.

Wassalamu'alaikum Warahmatullahi Wabarakatuh.
MESSAGES

DR. ANWAR MA’RUF, DVM., M.KES.
Chairman

Assalamu’alaikum warahmatullahi wabarakatuh

Ladies and Gentleman

I have the honour of welcoming, delegates and speakers to Surabaya and the 2012 International Seminar.

Organised under the theme “Strategy to Manage Bio-Eco-Health System for Stabilizing the Animal Health and Productivity to Support Public Health” this program was aimed to provide a forum for all those interested in sharing and discussing common concerns and up to date research in the physical, biological, social and economical changes that it happen in the environment which generates for human health.

It is only through exchange of information that we can carefully develop the strategic and medical intervention in managing bio eco health system to increase health and reproduction animal for supporting public health. So I hope you will take advantage of the many opportunities this program provides to network with colleagues from around Indonesia and overseas.

The successful organization of this program has required the dedication and time of all committee members. Much work went into preparing the program. I am very grateful for the financial support we have received from our sponsors which are recognized in this book. It would not be possible to hold this program without their support.

I do hope that the seminar will be fruitful for all of us and please enjoy your stay in Surabaya.

Thank you very much.

Wassalamu’alaikum warahmatullahi wabarakatuh.
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EFFECT OF NICOTINE ON SERUM MALONDIALDEHYDE (MDA) IN RATTUS NOVERGICUS

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ABSTRACT

Indonesia was the third tobacco consumption country after China dan India. Girls who smoked in Indonesia was 4% dan women was 4,5%. Tobacco in cigarette had bad effects to health, and the major component of it was nicotine as pro-oxidant. This research was to know the effect of nicotine to serum MDA as indicator of oxidative stress. Design of this research was experimental with post test only control group design. Subjects consisted of 4 groups (40 rats) that were chosen homogeny and random. The groups were control (NaCMC), treatment dan groups that were injected by nicotine subcutaneous for 7 days. The doses were 21 mg/kgBW, 42 mg/kgBW dan 84 mg/kgBW. The observation was calculating MDA. The result of one way Anova was significant differences among all of the groups (p < 0.05). That analysis was continued by Tuckey HSD test. It showed significant differences between control and all of treatment groups (p < 0.05), 21 and 42 mg/kgBW with 84 mg/kgBW (p < 0.05), and 84 mg/kgBW with the other groups. The conclusion was nicotine could increase serum MDA in Rattus novergicus.

Keywords: nicotine, oxidative stress, serum MDA

INTRODUCTION

There were 1,3 trillion smokers in the world in 2003 based on WHO survey, and increased until 1,7 trillion in 2010. WHO estimates that there will be 1 trillion people die because of smoking in 21st century (Rabinoff et al., 2007). Indonesia was the third tobacco consumption country after China and India. In Indonesia, the number of girls who smoke were 4% and women were 4,5% (FBI, 2009).

Cigarette will effect active and passive smoker (Fajriwan and Jusuf, 1990; Vasquez, 2008). Nicotine is the major component of cigarette because it contains for about 50% nicotine (Hukkanen et al., 2005). Nicotine is an oxidant that can cause lipid peroxidation (Paszkowski, Clarke, Hornstein, 2002). The result of lipid peroxidation is MDA (Wood, Gibson, Garg, 2003).

MATERIALS AND METHODS

This research used experimental methodology with post test only control group design. The samples were Rattus novergicus that were treated by nicotine injection of 21 mg/kgBW (Group 1), 42 mg/kgBW (Group 2) and 84 mg/kgBW (Group 3) based on Kakisina’s research (2003) with converted dose, 7x mice dose (Kusumawati, 2004). The number of sample was 9/group (Kemas, 1991). To prevent mice died, the number was added until 11/group.

The procedure was started by making nicotine solution, giving treatment of nicotine, taking blood sample, making serum, and MDA examination. Treatment was done after preparation of rats. Nicotine
was injected subcutaneous once a day for 7 days. Control group was injected by CMC-Na with the same way.

After 7 days of treatment, blood was taken and made serum. Procedure of MDA examination was 0.5 ml of serum + PBS solution 4.5 ml were centrifuged 3000 rpm for 15 minutes. 4 ml of supernatant was taken. It was added by TCA 15% 1 ml + 1 ml TBA 0.37% in HCl 0.25 N. It was heated in waterbath 80°C for 15 minutes, and then cooled it down in room temperature. After that, it was centrifuged 3000 rpm for 15 minutes and the supernatant absorbance was checked in 532 nm. MDA level in serum was known by using regression curve.

RESULTS AND DISCUSSION

Table 1. MDA level

<table>
<thead>
<tr>
<th>NO</th>
<th>CONTROL</th>
<th>P1 (21 mg/kgBW)</th>
<th>P2 (42 mg/kgbw)</th>
<th>P3 (84 mg/kgBW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>21</td>
<td>42</td>
<td>72</td>
<td>120</td>
</tr>
<tr>
<td>2</td>
<td>24</td>
<td>50</td>
<td>71</td>
<td>173</td>
</tr>
<tr>
<td>3</td>
<td>51</td>
<td>60</td>
<td>48</td>
<td>190</td>
</tr>
<tr>
<td>4</td>
<td>56</td>
<td>57</td>
<td>75</td>
<td>139</td>
</tr>
<tr>
<td>5</td>
<td>35</td>
<td>39</td>
<td>51</td>
<td>103</td>
</tr>
<tr>
<td>6</td>
<td>32</td>
<td>61</td>
<td>64</td>
<td>127</td>
</tr>
<tr>
<td>7</td>
<td>10</td>
<td>48</td>
<td>69</td>
<td>134</td>
</tr>
<tr>
<td>8</td>
<td>24</td>
<td>48</td>
<td>63</td>
<td>124</td>
</tr>
<tr>
<td>9</td>
<td>13</td>
<td>55</td>
<td>74</td>
<td>102</td>
</tr>
<tr>
<td>10</td>
<td>16</td>
<td>64</td>
<td>67</td>
<td>101</td>
</tr>
<tr>
<td>Mean</td>
<td>28.2</td>
<td>52.4</td>
<td>65.4</td>
<td>131.3</td>
</tr>
</tbody>
</table>

MDA level was analyzed by one way Anova 95%. The result of Anova test showed that p = 0.000 (p < 0.05). It meant there was significant differences of MDA level between control and treatment groups.

Nicotine as the major component of cigarette was an oxidant. It caused oxidative stress inside body. This condition happened because of imbalance of antioxidant and oxidant inside body. If oxidant was more dominant than antioxidant, it would cause oxidative stress. Oxidative stress was known by increasing of MDA level (Zenjes, 2000; Wood dkk., 2003; Chattopadhyay dan Chattopadhyay, 2008). Because of Anova test was significant, the analyzed was continued by Tuckey HSD test 95%. It was showed in Table 2.

Table 2. Tuckey HSD Test

<table>
<thead>
<tr>
<th>NaCMC</th>
<th>21 mg</th>
<th>42 mg</th>
<th>84 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>NaCMC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21 mg</td>
<td>0.02*</td>
<td>0.00*</td>
<td>0.00*</td>
</tr>
<tr>
<td>42 mg</td>
<td>0.00*</td>
<td>0.38</td>
<td>0.00*</td>
</tr>
<tr>
<td>84 mg</td>
<td>0.00*</td>
<td>0.00*</td>
<td>0.00*</td>
</tr>
</tbody>
</table>

Note: (*) showed significant differences

Table 2 showed that control was different with all of treatment groups. It meant that low dose had increase MDA level. Dose of 21 mg/kgBW was different with 84 mg/kgBW, but not different with 42 mg/kgBB. It showed that MDA level because of nicotine would increase and it was higher in high
dose. But medium dose of nicotine could not increase MDA level significantly. Dose of 84 mg/kgBW was different with all of groups because it was high dose that can increase MDA level significantly.

CONCLUSION

The conclusion was nicotine with 21, 42 and 84 mg/kgBW could increase MDA level in *Rattus novergicus*.

REFERENCES


