



**PERHIMPUNAN AHLI TEKNOLOGI PANGAN INDONESIA
(THE INDONESIAN ASSOCIATION OF FOOD TECHNOLOGISTS)**

Sekretariat:

Gedung SEAFASST Center Jalan Puspa No. 1 Darmaga Bogor
Telp/Fax : (0251) 8629903, e-mail : patpi_0608@yahoo.com

No. : 02/VII/PATPI/ 2010
Attach : 1 (one) file
Subject : **Acceptance Letter**

Bogor, July 22, 2010

Mellissa
Swiss German University
e-mail: filiana.santoso@sgu.ac.id

Dear Miss Mellissa,

On behalf of the Scientific Program Committee, I thank you very much for your participation on PATPI International Seminar, which will be held in Jakarta on September 29-30, 2010.

Your submitted abstract entitled "Microbiological and Sensory Quality of Wholemeal Bread with Essential Oil as Preservative" has been accepted for **oral** presentation. Please send your extended abstract no later than August 10th, 2010 (please find the extended abstract format attached), and prepare the Power Point file for your presentation. The allocation time for your presentation and discussion is about 15 minutes. Please also complete your registration form and fee payment to YAYASAN PATPI, Bank BNI Cabang Bogor, Account no. 0003890715.

Your participation and contribution to this very important Seminar will be highly appreciated. We would like to make this occasion a most memorable one for you.

If you have any question, please feel free to contact us and look forward to meeting you in Jakarta soon.

Sincerely yours,

Dr. Lilis Nuraida
Scientific Program Committee for PATPI International Seminar
Telp/Fax : +62 251 8629903
E-mail : seminarpatpi2010@yahoo.com

ABSTRACT

MICROBIOLOGICAL AND SENSORY QUALITY OF WHOLEMEAL BREAD WITH ESSENTIAL OIL AS PRESERVATIVE

Melissa, Filiana Santoso, Yonathan Asikin

Swiss German University, BSD City, Tangerang, Indonesia

This study focused on the investigation of the capability of traditional essential oils as spoilage-inhibiting agents in wholemeal bread and their effect on bread qualities. Two essential oils (cinnamon and eugenol) were tested in various concentrations and applied using different methods (addition in butter and dough). The treated wholemeal breads were examined by chemical and microbial analysis as well as sensory evaluation. It was shown that the moisture content and pH value of the bread were not correlated with the mold growth. On day 3, untreated bread was spoiled by visible mold growth, whereas bread with 0.10% cinnamon oil applied in butter could prolong the shelf-life to 5 days, respectively. Moreover, the latter exhibited a lower mold count than bread preserved with calcium propionate. In general, cinnamon oil proved to show better antifungal and antibacterial preservative effects compared to eugenol. Higher oil concentration was found to be directly proportional to antimicrobial activities. Addition of oil in the butter resulted in a more effective inhibition of microorganism, since the oil could distribute more evenly in the bread. Independent of the nature of the oil, the application in butter produced higher palatability of bread for all attributes tested. Bread sample with 0.10% cinnamon oil in the butter affected the acceptance of the panelist significantly ($p < 0.05$) and became the most preferred bread in terms of appearance and texture. The bread showed better consistency in sponginess and springiness than the other products, even after 5-day storage period. However, it did not exhibit significant impact on the aroma, taste and aftertaste. Bread containing eugenol oil at 0.10% added in the dough was least preferred by 30 untrained panelists. Except breads with 0.07% and 0.10% eugenol oil in the dough, all treated samples exhibited a higher acceptance level, signifying the potential use of essential oil as effective preservative and functional additive enhancing the sensorial properties of wholemeal bread.

Keywords: Essential oil, wholemeal bread, preserving agent, chemical and microbiological analysis, sensory evaluation