



## Phytase activity in yeast

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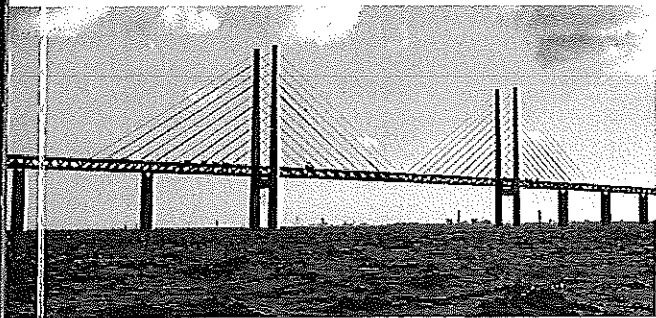
*Published in:*  
22nd International ICFMH Symposium Food Micro 2010

*Publication date:*  
2010

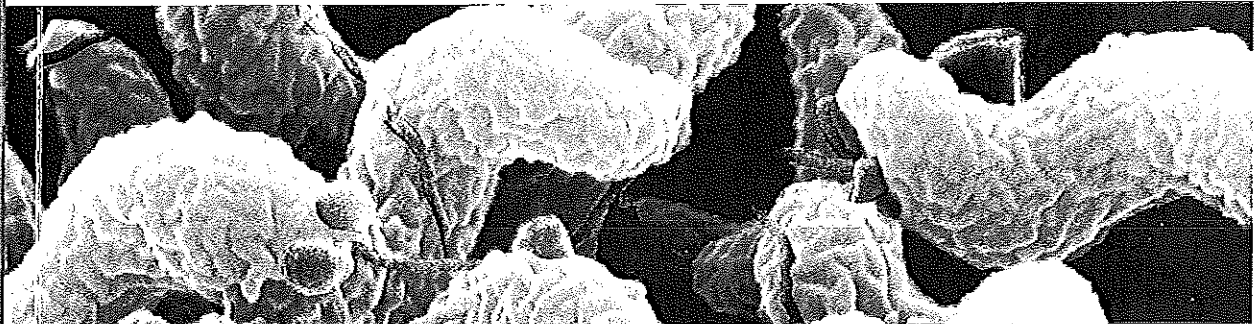
*Document version*  
Early version, also known as pre-print

*Citation for published version (APA):*  
Nubariene, L., Hansen, A. S., Jespersen, L., & Arneborg, N. (2010). Phytase activity in yeast. In *22nd International ICFMH Symposium Food Micro 2010* Copenhagen.

# 22<sup>nd</sup> International ICFMH Symposium Food Micro 2010



Copenhagen 30<sup>th</sup> August - 3<sup>rd</sup> September



Final Programme & Abstract Book



[www.foodmicro.dk](http://www.foodmicro.dk)

Hinenoya A	PEC1.77	Ingmer H	PEB1.21		PED2.04	Kanno S
Hinrichs J	PEA1.16		PEB1.23	Javier Y	PED2.01	Kantikova M
Hiraga Chidchom	PED2.11		PEC1.62	Jensen AN	PED1.33	Kapetanakou A
Hocking A	PEB2.56		PEC1.68	Jensen Annette N	PED1.23	
Hojberg Ole	PEB1.30		PEB2.21	Jensen BB	PEE2.22	Kapetanakou, Anc
Holck A.	PEB2.52		PED2.16	Jensen LB	PEB2.45	Karamad Dina
Holvoet, K	PSD1.01	Iñiguez C	PED1.05	Jensen, Annette Nygaard	PSE1.02	Karbancýglu-Güle
Holzapfel W	PEE2.21		PED2.09	Jeong A-R	PED1.34	Karbancýglu-Gül
Holzapfel Wilhelm	PEE2.20	Inoue H	PEC1.77	Jeršek B	PED2.52	Karbassi A
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Hoorfar J	PEC1.07	Irkin Reyhan	PEE2.01		PEA1.37	
	PEC1.08	Irlinger F	PEA2.04		PEA1.40	Karpiskova R
	PEC1.11	Irmeler Stefan	PEA1.19		*PEA1.41	
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	PEC2.06	Islam Mohammad	PEA1.77		PEE2.24	Kashi Yechezkel
	PED1.03	Ivanova Iskra	PEA2.17	Jespersen Lene	PEA1.10	
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Hoshino K	PEE2.13		PEC2.18	Jo MJ	PED1.34	Katz T
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Houf, K	PSC1.05		PED1.24	Johannessen GS	PEC1.86	Khamisse Elissa
Houndenoukon M	PEA1.42	Jacxsens Liesbeth	PEC2.35	Johansson T	PEB1.26	Khan Nazer AH
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	PEA1.42	Jacxsens, L	PSD1.01	Jonkman J	PEA1.55	
Hounhouigan JD	PEA1.14	Jafari Fereshteh	PEB1.27	Jonkviene Dovile	PEB2.57	Killer J
	PEA1.55	Jaime I	PEC1.54	Jooste P	PEB2.16	Kim D-H
Hovda Maria Befring	PEC1.63		PEC2.20	Jordan K	PEC2.06	KIM H-n
Hradecka Helena	PEE2.12		PEC2.21	Joris Maria-Adelheid	PED1.29	Kim H-n
Hrušková V	PEB1.20		PEC2.26		PED1.37	Kim H-Y
Huang Yanyan	PEB2.36		PED2.22	Josefsen M	PEC2.01	Kim Hyun Jung
Huang, Q	PSA2.06		PED2.32	Josefsen Mathilde	PEC1.11	Kim Y
Huber Ingrid	PEE2.11		PED2.43		PSC1.06,	Kim YG
Hudecova A	PEC1.04		PED2.44	Juliana Cunha, A	PSA1.04	Kim Y-G
	PEC1.15	Jain R	PEB1.17	Jung BY	PEB2.10	Kim Yungyeong
Hudson, A	PSD2.06	Jakobsen AN	PED1.31	Juodeikiene G	PEA1.61	Kinèhè A
Huehn S	PEC1.08	Jakobsen Anita N	PEA1.57	Kabaðinskienė A	PEC2.52	Kirezieva K
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Hultman J	PEA2.28		PEA1.42	Kabisch Jan	PEA2.12	Kita T
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Huynh S	PEB2.46		PEB2.45	Kagkli D	PEA2.19	Klanènik A
Hwang I	PEC1.38		PED2.50	Kahraman O	PEA1.47	Klinder A
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Hyun JY	PEC1.42	Jan G	PEE1.01	Kalmykova Galina	PEA2.33	Knauder E
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Iliopoulos V	PEA2.19	Jasson V	PEC2.15	Kankare M	PEB1.26	
in 't Veld Paul	PEB1.26	Javanmard Majid	PEA2.01	Kan-King-Yu, D	PSC1.01	Kocevski D

PEA1.41 Phytase activity in yeast

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The low absorption of minerals from cereal based food, such as bread, was attributed to the high content of phytic acid salts (phytates) in cereals. Phytic acid (IP6; *myo*-inositol hexaphosphate) is the principal storage of phosphorus in plants, particularly in cereal grains and legumes. It is highly charged with six phosphate groups extending from the central *myo*-inositol ring and binds minerals, such as  $Zn^{2+}$ ,  $Fe^{2+}$ ,  $Ca^{2+}$ ,  $Mg^{2+}$ . Formed phytate are insoluble at physiological pH, and, therefore, minerals and phosphate are unavailable for absorption in the human intestine. The bioavailability of minerals and phosphate will increase if phytate is degraded. Characterized phytases, are enzymes, that catalyses the stepwise dephosphorylation of phytate to *myo*-inositol and phosphoric acid via penta- to mono- phosphates. This enzymatic activity produces available phosphate and non-chelated minerals for human absorption.

Mineral bioavailability in bread can be increased, using high phytase active yeasts, in addition to native cereals phytase. There are no yeast strains with high phytase activity available for bread industry today, so the potential of identification of yeast strains to be used for bread making with high content of bioavailable minerals is of outstanding importance.

The objective of this study was to screen phytase activity in yeasts, isolated from food and drinks. Screening of phytase positive yeast strains was carried out at conditions, optimal for bread making: pH 5.5 and 30 °C, in order to identify strains which could be used for baking industry.

A total of 41 yeast strains, belonging to *Saccharomyces cerevisiae*, *S. pastorianus*, *S. bayanus*, *S. exiguus*, *Candida krusei*, and *Arxula adeninivorans* species, were screened for their ability to grow in minimal liquid and on solid media, supplemented with phytic acid dipotassium salt, as the only phosphorus source. Eleven yeast strains were selected for further determination of phytase activity due to their rapid growth in liquid and on solid minimal media. Two yeast strains were selected for further determination of phytase activity due to their very slow growth in liquid minimal medium, in order to check the trustiness of primary screening - growth test in liquid medium.

PEA1.42 Evaluation of yanyanku processing, an additive used as starter cultures to produce condiments in Benin

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*Yanyanku* is produced by natural fermentation of *Hibiscus sabdariffa* beans. The product is used as an inoculum or an additive-like starter culture for the fermentation of African locust bean seeds (*Parkia biglobosa*) to produce *Sonru* which is one of the most important food condiments consumed by the rural poor as well as high-income urban families in Benin. Three variants of *Yanyanku* processing have been identified: the *Yanyanku var. 1* (pH =  $9.95 \pm 0.06$ ) involved adding of potash to the beans before cooking, two steps of 72h and 24h of fermentation and one step of sun drying; the *Yanyanku var. 2* (pH =  $8.23 \pm 0.04$ ) required adding of ash solution after cooking the beans, one step of 72h of fermentation, and two steps of crushing and sun drying; the *Yanyanku var. 3* (pH =  $10.14 \pm 0.02$ ) involved adding of potash before cooking the beans and one step of 7 days of fermentation. *Bacillus* spores dominated in the three variants. Spores concentrations ( $\log_{10}$  CFU/g) were 8.95; 8.22; and 9.55 in *Yanyanku var. 1*, *Yanyanku var. 2* and *Yanyanku var. 3*, respectively. Proteins, lipids and carbohydrates decreased during the processing, particularly in *Yanyanku var. 2* and 3.

Key-words: *Yanyanku* processing; Additive; *Hibiscus sabdariffa* beans; Starter cultures; Condiments; *Bacillus* spores; Ash; Potash, *Sonru*, Fermentation.

PEA1.43 Monitoring of must from Botr  
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(1) University of

In this study 3 strains of *Saccharomyces cerevisiae* during fermentation of must from botrytized grapes (control), were p (total acidity) and yeast micr different phases of the winer acid concentrations of musts flavans and anthocyanins of was performed by SPME-GC/MS. Results obtained by analysing inoculated strains dominated the interdelta patterns different tions ( $0.279 \pm 0.030$  ppb,  $0.19 \pm 0.019 \pm 0.052$  ppb). Further sig from starter inoculated ferm the other hand, colour inten particular, wine produced by significant higher quantities aldehyde and linalool than th This work was supported by p parietal adsorption activity"

PEA1.44 Molecular mar  
tial for vitamin  
*Williams Turpin*  
(1) IRD, Nutritio

Lactobacilli species have been bind to the epithelium of th recognized. Most of the rese lows a new strategy to look f in probiotics function in a c Ouagadougou (Burkina Faso) *acidilactici*, and *P. pentosaci* to the folate and riboflavin s genetic screening of the col of strains carry genes encod traditional fermented food f fermented pearl millet slurri tial with a moderate variabil