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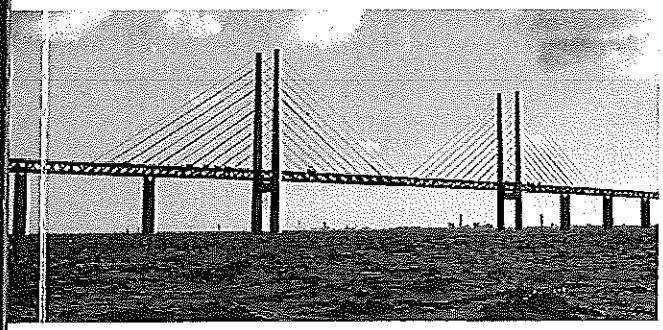

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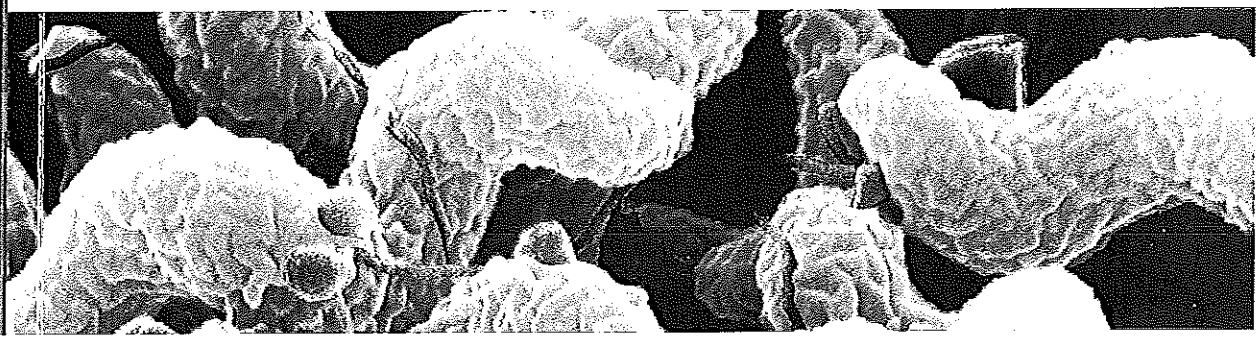

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PEA1.41 Phytase activity in yeast

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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 psychological 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± 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 ± 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 ± 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 (

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Giuseppe Blaiott
(1) University of

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PEA1.44 Molecular map

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