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Title:	Yeasts: Production and Commercial Uses
Authors:	Bachhawat, A.K. (/jspui/browse?type=author&value=Bachhawat%2C+A.K.)
Keywords:	Air lift fermenter Bakers yeast Fed-batch cultivation Heterologous protein expression Metabolic engineering Process control Yeast products
Issue Date:	2014
Publisher:	Elsevier
Citation:	Encyclopedia of Food Microbiology: Second Edition, pp.823-830.
Abstract:	Commercial production of yeast, which exceeds 1.8 million tons per year, owes its success to the optimization of feedstock, energy inputs, physico-chemical parameters, and chemical engineering innovation. The knowledge of the unique adaptive physiology of <i>Saccharomyces cerevisiae</i> to varying aeration rate and glucose concentration in growth medium allows the process to be directed to make either yeast biomass (baker's yeast) or ethanol. Baker's yeast production includes a judicious combination of batch- and fed-batch cultivation methods, wherein the batch process prepares yeast cells to be elegantly equipped for full-bloom biomass production in the final fed-batch stages of cultivation. Typically, in an eight-stage schedule, 0.2 kg of yeast solids give a final yield of about 100 000 kg of yeast. It is dispensed as cream-, compressed-, or active dry yeast to suit storage and usage needs. Yeasts are used mostly in baking industry, but also in brewing and distilling industries, and to a lesser extent in the manufacture of yeast products, such as natural flavorings, dietary supplements, and microbiological media ingredient. Increasingly, newer applications are emerging for <i>Saccharomyces</i> spp. and also for nontraditional yeasts. This includes their use as hosts in heterologous protein expression for therapeutic proteins as well as hosts for metabolic engineering and synthetic biology for production of natural products.
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