The use of selenized yeast as enriched selenium supplements in human nutrition has become a topic of increasing interest over the last decade. The present study was designed with the aim to achieve a balance between selenium (Se) incorporation and optimal growth of yeast cells along with effect of Se enrichment on antioxidant defense status of yeast cells. Since oxidative stress has been known to play a role in the life span of all types of cells, so in the present studies antioxidant defense status was evaluated in the Se-enriched baker’s yeast cell culture model. Upon Se supplementation as sodium selenite at various concentrations in the growth medium, a continuous increase in glutathione peroxidase (GSH-Px) activity and Se content was observed. In case of reduced glutathione (GSH) decreasing trend were observed with increasing Se concentrations. An increasing trend in total glutathione as well as glutathione-s-transferase activity was observed at increasing Se concentrations. Thus, Se supplementation significantly enhanced GSH-Px levels along with alterations in other anti-oxidant enzymes, suggesting the role of Se in the enzyme defense system of yeast against oxidative damage. Further, as Se exerts growth inhibitory effect on cells, the growth inhibition study was carried out and decrease in biomass was observed with increasing concentrations of Se. Due to nutritional benefits, Se-enriched yeast may be considered a safe source of Se supplementation.

Keywords
Sodium selenite, Selenium uptake, Biomass, Anti-oxidant system, Saccharomyces cerevisiae.