Real time RT-PCR analysis of expression of DNA damage check point and *cytochrome P450* genes in yeast *Saccharomyces cerevisiae* due to toxicants

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Abstract

Real time RT-PCR is a very useful method to evaluate the expression level of genes interest quantitatively. It can be applied to study a specific relationship between expression patterns and toxicity effects of environmental pollutants based on m-RNA level. The analysis of the expression patterns, then, may lead to estimation of the effect of toxicants on the cell cycle of *Saccharomyces cerevisiae.* In this study, therefore, cytochrome P450(CYP) enzyme and DNA-damage check point genes were examined through the analysis of gene expression profiles using a Real time RT-PCR. The DNA-damage check point genes tested were the chk1 and pds1 genes, involved in a metaphase arrest, the swi6, targeted by a G1 arrest, the pol2 gene, related to S phase arrest, and the cln2 gene, encoding a cyclin protein, all of which are based on rad9 and rad24. DNA damage check point genes such as swi6 and rad9 were significantly induced by MMC, which is DNA damaging agent. It was found that the cytochrome P450 enzyme that is responsible for xenobiotic metabolism, were induced by all tested toxic chemicals.

References

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