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**PTEN Polymorphism in Employees Exposed to Chlorine Doses at Water Purification Plants**

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**ABSTRACT**

**This study came to clarify the effect of repeated exposure to chlorine on the phosphatase and tensing homolog (PTEN) polymorphism gene in people working in water purification plants by used a tetra-primer ARMS PCR method, SYBR Green I-with real-time PCR, to detect the SNP of interest of PTEN gene. In this study, we have observed highly significant differences between the genotypes of the PTEN gene in the chloride employee group and the control group. Two genotypes AA and CC of PTEN lead to a decrease in the risk factor (OR= 4.75, OR= 9.5) respectively, while the CA genotype leads to a high risk factor (OR=42.75). The study also showed that the number of alleles A equal to allele C in chloride employees, while the number of alleles C is higher than allele A in the control group. The highest percentage in the control group comparing with allele C in the chloride employee group.**

**Keyword: PTEN Polymorphism, Chlorine Doses, Plants**