

A simple mouthwash method for genomic DNA isolation in molecular studies

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Content:

Background: Application of PCR techniques requiring only minute amounts of Genomic DNA. Thus, a less invasive, simpler to perform, and cheaper method to obtain DNA from exfoliated cells is desirable. We aim to develop a method that can obtain high quality of genomic DNA from one sample that allows for numerous application of PCR analysis. **Objective:** This study describes a simple, inexpensive and non invasive protocol to isolate a high quality of genomic DNA from exfoliated cells by using swish method. **Methodology:** Twenty two subjects vigorously swished 10 ml of normal saline in their mouth for 60 s and spitted into a collection tube. DNA extraction assay was performed by using saliva DNA isolation kit (Norgen, USA). The washed pellets were suspended in TE buffer and analyzed for the quality and purity of DNA content by using the NanoDrop Spectrophotometer. A ratio of A260/A280 was calculated. The extracted genomic DNA was amplified with primers of p53 intron 6 by using PCR machine. The presence of amplified DNA was then confirmed by electrophoreses analysis, which DNA bands were scanned by Typhoon 9410 variable imager. **Results:** In this study, the extracted genomic DNA demonstrated an average value of 1.94 O.D. in DNA content purity and 42.9 $\mu\text{g}/\mu\text{l}$ in DNA yields. The electrophoresis images of the DNA products showed visible and detectable bands of higher molecular weight DNA in all the samples. **Conclusion:** The results showed that the extracted genomic DNA from the exfoliated cells by applying the swish method, that provides substantially larger amounts and higher molecular weight of DNA for down-stream DNA identification application. In addition, all samples were successfully genotyped by PCR-based assays for p53 gene intron 6 regions, which confirmed that the quality of isolated DNA was reliable in supporting the PCR amplification for the molecular studies.

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