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**The Thesis Submitted for the Degree of M. Sc.  
(In the Field of Molecular Genetic)**

Study of the effect of Nannorrhops ritchiana leaf extract on the amount of fluorescent products caused by DNA Glycation

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**Abstract:**

One of the most important biological molecules in the body of living things is DNA, so any change in its structure can transform the entire living organism. Glycation of DNA plays a key role in many diseases and causes genetic instability. It is also more likely to mutate in glycated DNA than normal. Due to the damage caused by non-enzymatic DNA glycation process, in this study, the structural changes and the amount of glucose-treated DNA degradation in the presence and absence of methanol extract of Daz leaf (especially in Sistan region) by gel electrophoresis methods Two-color circular dichroism spectroscopy, fluorescence, ultraviolet-visible spectroscopy were investigated. For this purpose, DNA was treated with glucose at physiological conditions of glucose at a concentration of 16.5 mM (diabetic conditions) for 28 days in the presence or absence of Daz leaf extract. Then the structural changes of DNA treated with Daz extract were investigated. In this study, fluorescence spectroscopy results indicated that fluorescence emission was increased at both excitation wavelengths for samples treated with glucose + gooseberry extract, glucose, gooseberry extract, respectively. Two peak peaks at 1 and 2 nm wavelengths were also obtained for the above samples in the two-pulse dyeing test, respectively. The results of electrophoresis also showed that the DNA structure was damaged by glycation by Dose and Glucose extract. Overall, the results of this study showed that DNA glycation in methanol extract of Daz leaf caused severe physical and chemical changes and made DNA susceptible to mutation.

**Keywords:** Glycation, Diabetes, *Nannorrhops ritchiana* , Glycation End Product, AGE