

Abstract

Nowadays diabetes is the most important metabolic disease that directly and indirectly covers the huge costs of the country's health system. One of the most important effects of glycation is that it changes the structure of DNA and leads to DNA strand breaks, mutations and altered gene expression. Antioxidants can inhibit the formation of Advanced Glycation End Products in the glycation process by inhibiting the oxidative pathway and preventing ROS production. In this study, we compared the effect of fresh garlic extract and vinegar-treated garlic extract on DNA glycation process by placing glucose incubation for 4 weeks by spectroscopic methods (Fluorescence spectroscopy, UV-Vis spectroscopy, CD, gel electrophoresis and FTIR) were studied. The results of fluorescence spectroscopy and UV-Vis spectroscopy showed DNA glycation and the highest DNA damage was when treated with glucose and with the presence of fresh garlic extract and vinegar-treated garlic extract reduced. The fresh garlic extract has been found to be more effective. Also, the results of dichroism circular indicated that structural changes and gel electrophoresis showed the amount of DNA damage in AGE affected by fresh garlic extract and vinegar treated garlic extract and fresh garlic extract in the meantime. It was even more impressive. Therefore, it can be stated that fresh garlic extracts and vinegar-treated garlic extract have inhibitory role in DNA glycation process, whereas fresh garlic extract has more effective role in reducing DNA damage induced by glycation has it.

Keywords: glycation end products, fresh garlic extract, vinegar-treated garlic extract, Glycated DNA.



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