

***Terminalia arjuna* attenuates glycation and glycation induced cross-linking; An *in vitro* study**

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Non-enzymatic glycation leads to the formation of advanced glycation end-products (AGEs) which are key mediators of the pathogenesis of chronic diabetic complications and of accelerated skin ageing. Intermolecular cross-linking is caused by some AGEs, affecting the function of the target molecule. Collagen is a primary target of such AGE mediated changes. The objective of this study was to investigate the inhibitory effects of *Terminalia arjuna* (family *Combretaceae*) bark methanol extract on glycation and glycation induced cross-linking using polyacrylamide gel electrophoresis under native and denaturing conditions. Bovine serum albumin (BSA) and lysozyme were incubated with 0.5 M fructose for 21 days at 37°C and pH 7.4, in the presence or absence of different concentrations (0.01 - 1 mg/mL) of the bark methanol extract. Appropriate controls and the standard glycation inhibitor aminoguanidine (1 mg/mL) were used. Aliquots from BSA and lysozyme were analyzed using native polyacrylamide gel electrophoresis (PAGE) and sodium dodecyl polyacrylamide gel electrophoresis (SDS-PAGE) respectively. Glycated BSA showed an increase in the migration towards the anode with PAGE, when compared with that of non-glycated BSA. High molecular bands were visible with SDS-PAGE, depending on the extent of lysozyme cross-linking. *T. arjuna* showed inhibitory effects on glycation and glycation induced protein cross-linking at all the concentrations used from 0.01 to 1 mg/mL. In conclusion, methanol extract of *T. arjuna* bark showed strong *in vitro* inhibitory effects on glycation and glycation induced protein cross-linking, indicating the value of further studies.

Keywords: *Terminalia arjuna*, glycation, cross-linking

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