

Protective effects of *Koelreuteria paniculata* Laxm. on oxidative stress and hydrogen peroxide-induced DNA damage

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Abstract

In this study, n-butanol fraction (KBF) and aqueous fraction (KAF) isolated from methanol extract of *Koelreuteria paniculata* Laxm. leaves were evaluated for their antioxidant potential using (ABTS) 2, 2-Azino-bis-(3-ethylbenzthiazoline-6-sulfonic acid), DPPH (2,2-diphenyl-2-picrylhydrazyl) assay, Reducing power assay and Superoxide anion radical scavenging assay. These fractions were also studied for their DNA protective activity based on hydrogen peroxide-induced DNA damage using calf thymus DNA. Both fractions exhibited good scavenging potential in ABTS assay, DPPH assay, reducing power assay and superoxide anion radical scavenging assay. The KBF and KAF showed percent antioxidant activity of 73.24 and 81.18 in DPPH assay, 90.93 and 60.27 in ABTS assay, 47.30 and 73.70 in reducing power assay and 77.5 and 60.22 in superoxide anion radical scavenging assay at highest tested concentration respectively. Both fractions also showed protection to calf thymus DNA against hydroxyl radical damage generated as result of Fenton's chemistry in DNA protection assay.

Key words: *Koelreuteria paniculata*; Antioxidant potential; Fenton's chemistry; DNA damage; DPPH assay; ABTS assay

Introduction

Normally endogenous and exogenous antioxidant defense system plays an important role in ameliorating the oxidative stress in the body but sometimes there is excessive production of free radicals which cause damage to different biomolecules (Halliwell and Gutteridge, 1989). Normally, ROS are responsible to help several signal transduction and intercellular communications (Valko et al., 2004). Overproduction of these reactive oxygen species cause number of pathological effects such as causing lipid peroxidation, protein peroxidation, DNA damage and cellular degeneration leading to cardiovascular disease,