

Antiglycation and antioxidant activity of a rare medicinal orchid *Dendrobium aqueum* Lindl.

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Abstract

Oxidative stress and glycation plays an important role in manifesting of diabetes and vascular complications. Agents with antiglycation and antioxidant properties may retard these pathological alterations. Aqueous extract of aseptically regenerated *Dendrobium aqueum* was used for *in vitro* estimation of antioxidant and antiglycation potential. Antioxidant activity was evaluated as DPPH radical scavenging activity, whereas the protein glycation inhibitory potential was evaluated using *in vitro* albumin/fructose glycation model. Glycation inhibition was estimated by different biochemical parameters i.e. fructosamine, protein carbonyl group, thiol content and Congo red binding; indicators of various glycation modification of albumin. *D. aqueum* extract showed a dose dependent DPPH free-radical scavenging potential and exhibited a significant antiglycation potential. Our finding might open a new arena of research in traditional herbal medicine with *D. aqueum* orchid which could be utilized in diabetes due to its antiglycation and antioxidant properties

Keywords: *Dendrobium aqueum*, diabetes, antioxidant, antiglycation

Introduction

Reactive oxygen species (ROS) and reactive nitrogen species (RNS), including peroxides, super-oxides, hydroxyl radicals and nitrous oxide, generated in the living organisms by cellular metabolism, are known to play a vital role in oxidative cellular damage (Halliwell, 1997). Oxidative stress, resulting from these free-radicals play an important role in manifesting various disorders, including ageing and diseases like diabetes, cancer, cardiovascular diseases, Parkinson's and so on (Mukherjee et al., 2010; Mukherjee et al., 2011a, 2011b). Thus to alleviate such condition in the body, a defense mechanism becomes mandatory. Several types