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Evaluation of the inhibitory effect on advanced glycation end product formation by an ayurvedic decoction *in vitro*

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Despite the advances observed in modern medicine in recent times, plants still make an important contribution to healthcare. Recent studies have highlighted the importance of herbal medicines with anti-glycation properties. A non-enzymatic process recognized as protein glycation which leads to the irreversible formation of stable compounds known as advanced glycation end products (AGEs) is a major cause of serious chronic diabetic complications such as retinopathy, nephropathy and cardiovascular diseases. It is documented that inhibiting AGE formation could prevent these diabetic complications. The objective of this study was to analyze protein glycation inhibitory potential of a popularly prescribed ayurvedic decoction (AD**)** which is claimed to have anti-diabetic activity. AD comprised of,*Terminalia chebula*, *Terminalia bellirica, Phyllanthus emblica, Curcuma longa, Coscinium fenestratum, Cissampelospareira, Strychnos potatorum, Cassia auriculata, Cyperus rotundus,Syzygium cumini* and *Rubia cordifolia*.

The inhibitory effect of AD on fructose mediated non enzymatic glycation was investigated according to a published method. The reaction mixtures made in phosphatebufferedsaline (0.2M, pH 7.4) contained fructose (36 mg cm^{-3}), Bovine Serum Albumin (BSA) (5 mg cm^{-3}) and sodium azide (0.02% to minimize microbial activity). Different concentrations of AD were present in the mixtures. The formation of fluorescent AGEs was measured by using a spectrofluorometer, at an excitation and emission wavelengths of 355 and 440 nm, respectively. Each mixture (in triplicate) was measured after 1 week of mixing. The inhibitory action on glycation by AD was determined.

Aminoguanidine (AG) was used as the positive control. The percentage inhibitions observed after one week of incubation of AD (0.5, 1.0, 5.0, 11.1, 22.2, 33.3 mg cm^{-3}) solution mixtures were 75±1.2%, 84±0.6%, 92±1.0%, 84±3.0%, 90±1.0%, 96±1.0%, respectively. AG (0.5 1.0, 5.0 mg cm^{-3}) gave inhibitions of 65±3.5%, 68±0.57% and 98±1.0% respectively. These results showed that in comparison to Aminoguanidine, the ayurvedic decoction (AD) had a marked inhibitory potential towards AGEs formation.

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