3. OBJECTIVES

OBJECTIVES OF THE PRESENT STUDY

Non-enzymatic glycation of proteins to form advanced glycation end products (AGEs) are implicated in diabetes and its associated complications. Immunoglobulin G (IgG) is a major class of plasma protein, whose functions lie in the specific interaction with clearance of antigens. In diabetes mellitus and in some other diseases IgG dysfunctions has been reported, it behaves not only as an antibody but also act as putative antigens. This may arises as a consequence of molecular modifications. AGEs –damage IgG occurs as a results of hyperglycemia.

In the present study, IgG was purified from normal human sera by Protein –A agarose CL-4B affinity column. Purified IgG was then incubated for different time intervals with increasing glucose concentration at 37°C under identical experimental conditions. Glycated and non-glycated IgG samples were characterized by UV absorption spectroscopy, florescence studies, polyacrylamide gel electrophoresis, thermal denaturation, ketoamine and protein carbonyl contents estimation.

To measure glycation inhibition with salep and whitton root extracts, different concentrations of protein (BSA) and glucose (two of each) and three concentrations or volumes of salep and whitton root extracts (Plant extracts) were used.

Glucose, BSA with or without inhibitor (plant extracts in PBS pH 7.4) were prepared and their mixture was incubated at 37°C and 50°C for 5 weeks. During this, samples were drawn for glycation inhibition activity after 1st, 3rd and 5th week of incubation. The samples were kept at 4°C until analysis.

Trichloracetic acid (TCA) method for Maillard reaction inhibitory activity (of salep and whitton root extracts) described by Matsuura et al. (2002) was followed with some modification.