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Soluble lutein (lutemax2020®) prevents retinal damage in streptozotocin (stz)-induced diabetic rats

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The aim of the present study was to investigate the protective effects of Lutein in streptozotocin-induced (STZ) diabetic rat retina. Male Wistar rats were divided into four groups [Group I, Control (standard diet); Group II, DM; Group III: Group II + regular lutein [RL, lutein 0.5 %] and Group IV [Group II +soluble lutein [SL, Lutemax2020® 0.5 %]. All the animals were housed in individual cages maintained on their respective diets for 12 weeks and drinking water was provided ad libitum throughout the study period.DM was induced in overnight fasted animals by a single intraperitoneal injection of STZ (30 mg/ kg) in 0.1 M citrate buffer, pH 4.5.SL significantly prevented reduction in total retinal thickness better than that of RL as evidenced by H & *Estaining* qRT PCR, western blot and immunohistochemistry studies showed lowered expression of VEGF and PDGF (stimulates vasculogenesis and angiogenesis in the retina) in group-SL when compared to group-D. SL prevented loss of rhodopsin and nerve growth factor proteins as assessed by qRT PCR and immunofluorescence. Increased expression of stress proteins like glial fibrillary acidic protein (GFAP) and hypoxia-inducible factor 1-alpha (HIF-1A) is prevented by the SL more effectively than the RL. These results demonstrate that lutein has great potential in preventing diabetes-induced retinal degeneration.

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