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Sinigrin, a major glucosinolate from cruciferous vegetables restrains non-enzymatic glycation of albumin.

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Abstract

Sinigrin is a major component of cruciferous vegetables such as cabbage, Brussels sprout, mustard greens and broccoli. The present study demonstrates the protective effects of sinigrin against the non-enzymatic glycation of albumin and lens crystallin based on fluorescence spectroscopy, circular dichroism and molecular interaction studies. Sinigrin was found to be a potent inhibitor for both the early (Amadori product) and advanced glycation end products (AGEs). In addition, the in vitro glycation studies of lens crystallin demonstrated the strong antiglycation activity of sinigrin. Computational studies using molecular docking approach revealed the interaction pattern of sinigrin with BSA and the binding affinity of sinigrin was found to be greater than the other potent natural inhibitors of glycation such as quercetin, apigenin, and curcumin.

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KEYWORDS: Advanced glycation end products; Albumin; Sinigrin

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