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Inhibitory effect of lotus seedpod oligomeric procyanidins on advanced glycation end product
formation in a lactose–lysine model system

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Abstract

Background: Industrial food processing induces protein glycation modifications and toxic advanced glycation end products (AGEs) which affect human health. Therefore, it is of interest to monitor AGEs in food processing. The present study was carried out to investigate the influence of lotus seedpod oligomeric procyanidin (LSOPC) concentrations, solution pH value and metal ions on AGE formation by heat treatment of lactose–lysine model solutions. N-(carboxymethyl) lysine (CML), as one of the common AGEs was also determined by HPLC–MS/MS in this experiment. Results: The results showed that LSOPC can inhibit the formation of AGEs effectively at higher concentrations, lower temperature, and it can reverse the promotion function of metal ions because of its high inhibition activity. Also, LSOPC can inhibit CML formation in the Maillard reaction as well. Conclusion: These results indicated that LSOPC could be used as functional food ingredients to inhibit AGE formation.

Keywords

Advanced glycation end products (AGEs), Lactose, Lotus seedpod oligomeric procyanidins, (LSOPC), Lysine, Maillard reaction.

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