
Abstract
Cinnamon bark has been reported to be effective in the alleviation of diabetes through its antioxidant and insulin-potentiating activities. In this study, the inhibitory effect of cinnamon bark on the formation of advanced glycation endproducts (AGEs) was investigated in a bovine serum albumin (BSA)-glucose model. Several phenolic compounds, such as catechin, epicatechin, and procyanidin B2, and phenol polymers were identified from the subfractions of aqueous cinnamon extract. These compounds showed significant inhibitory effects on the formation of AGEs. Their antiglycation activities were not only brought about by their antioxidant activities but also related to their trapping abilities of reactive carbonyl species such as methylglyoxal (MGO), an intermediate reactive carbonyl of AGE formation. Preliminary study on the reaction between MGO and procyanidin B2 revealed that MGO-procyanidin B2 adducts are primary products which are supposed to be stereoisomers. This is the first report that proanthocyanidins can effectively scavenge reactive carbonyl species and thus inhibit the formation of AGEs. As proanthocyanidins behave in a similar fashion as aminoguanidine (AG), the first AGE inhibitor explored in clinical trials, they show great potential to be developed as agents to alleviate diabetic complications.