Inhibitory effects of Jabuticaba (*Plinia cauliflora*) on glycation and cataract formation in diabetic rat

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【Purpose】
Jabuticaba (*Plinia cauliflora*) is a fruit native to Brazil and is often consumed as juice, jam, wine, and liquor. The locals consider jabuticaba as traditional medicine due to its high content of polyphenols, which have been linked to various health benefits such as treating diarrhea and asthma. Our aim was to investigate the potential anti-glycation activity of jabuticaba, identify the active compounds through bioassay-guided fractionation, and assess the effect on cataract formation in a streptozocin-induced diabetic type 1 rat model.
【Methods】
To investigate the anti-glycation, an in vitro assay was conducted using human serum albumin and glucose in the presence and absence of the jabuticaba. Further, jabuticaba was extracted with 60% ethanol to obtain jabuticaba extract. The active substances were identified through bioassay-guided fractionation and LC-MS. In addition, streptozocin-induced diabetic rats were divided into two groups and given either drinking water or drinking water containing 0.5% (w/v) jabuticaba extract for 12 weeks while being fed a standard diet. After 12 weeks, the rats were sacrificed and their lenses were examined.
【Results】
In vitro study revealed jabuticaba had comparable anti-glycation activity to a positive control, aminoguanidine with IC_{50} values of 470 and 440 µg/mL, respectively. Through anti-glycation assay-guided fractionation, the active compounds were tentatively identified as gallic acid, protocatechuic acid, and an ellagitannin with IC_{50} values of 24.7, 1.22, 0.55 µg/mL, respectively. In vivo study demonstrated that the administration of jabuticaba extract ameliorated cataract progression. These results indicate that jabuticaba has anti-glycation activity, leading to suppression of cataract in diabetic rats.