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α-Glucosidase Inhibitory Activity of the Ethanol Extract of Peanut (*Arachis hypogaea* L.) Skin

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[Introduction]

Peanut (*Arachis hypogaea* L.) is an important crop world-wide because of its high efficiency in lipid and protein production. There is no doubt that the kernels is the most important product of peanut. In comparison with the kernels, the peanut skin is almost completely neglected in nutraceutical terms, although it has potentially health promoting phenolics and dietary fiber and there is considerable potential for its exploitation.

[Materials and Methods]

Hand-peeled peanut skin (PS) of the Sinpalkwang were extracted with 80% ethanol. In a spectrophotomeric experiment, the initial rate of α-glucosidase was measured with a Spectra Max M2e spectrophotometer at 37 ℃. The α-glucosidase activity assay was performed as below, 10 μl of an ethanolic inhibitor solution was mixed with 200 μl of 6.0 mM of *p*-nitrophenyl-α-D-glucopyranoside and 2,780 μl of a 0.1 M phosphate buffer (pH 7.0) was added. Then, 10 μl of a 0.1 M phosphate buffer solution (pH 7.0) of α-glucosidase (5 μg/mL) was added. The resultant solution was mixed, and the enzyme activity was determined by monitoring the *p*-nitrophenol released from PNP-G at a wavelength of 400 nm.

[Results and Discussions]

The α-glucosidase inhibitory effects of 80% ethanol extracts of peanut skin (cv. Sinpalkwang) was evaluated and their half-maximal inhibitory concentration (IC_{50}) value showed 1.5 μg/mL. The progress curves for enzyme reactions was recorded by spectrophotometric methods, and the inhibition kinetics revealed time-dependent inhibition with enzyme isomerization. Both the initial velocity and steady-state rate in the progress curve decreased with increasing PS extract. The kinetic parameters that described the inhibition by PS extract were evaluated by nonlinear regression fits.

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