

## Production of Dipeptidyl Peptidase-IV Inhibitory Peptides from Germinated Jack Bean [*Canavalia ensiformis* (L.) DC.] Flour

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<b>Title</b>	Production of Dipeptidyl Peptidase-IV Inhibitory Peptides from Germinated Jack Bean [ <i>Canavalia ensiformis</i> (L.) DC.] Flour
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<b>Abstract</b>	<p>An alternate plant-based protein, jack bean sprout, was explored as a source of bioactive peptides. Germination to increase dipeptidyl peptidase-IV (DPP-IV) inhibitory peptide in jack bean sprout flour has yet to be reported. Therefore, this study aimed to investigate the optimal condition to maximize the content of bioactive peptides with maximum DPP-IV inhibitory activity. The relationship between germination and DPP-IV inhibitory activity was determined by analyzing the proteolytic activity, percentage of degree of hydrolysis (%DH), and peptide content. Peptide samples with the most potent DPP-IV inhibitory activity were subsequently fractionated, identified, and characterized. The 60-h germinated jack bean had the best DPP-IV inhibitory activity (41.57%; half maximal inhibitory concentration=2.24 mg/mL). Proteolytic activity (15.24 unit/g), %DH (11.43%), and peptide content (59.71 mg/g) supported this result. Furthermore, the &lt;1.0 kDa peptide fraction of this sprouted flour had the highest molecular weight (MW) distribution (32.60%) and DPP-IV inhibitory activity (71.99%). Peptide sequences identified from MW &lt;1.0 and 1.0 similar to 3.5 kDa peptide fractions had valine, leucine, isoleucine, glycine, and tryptophan at the N-terminal and also had alanine at the penultimate N-terminal, verifying their presence as DPP-IV inhibitors. Furthermore, peptide sequences generated exhibited other biological activities, including angiotensin-converting enzyme, renin, and -glucosidase inhibitors.</p>
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