

研究業績 英文表記

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Title	Inhibitory Effects of Green Asparagus Extract, Especially Phospholipids, on Allergic Responses <i>in Vitro</i> and <i>in Vivo</i>
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Abstract	<p>Asparagus (<i>Asparagus officinalis</i> L.) is one of the widely consumed vegetables. To investigate the mechanism underlying the anti-allergic responses of asparagus, we extracted different fractions from asparagus and measured their inhibitory effects on β-hexosaminidase release in RBL-2H3 cells <i>in vitro</i> and an atopic dermatitis NC/Nga mouse model <i>in vivo</i>. The lipid fractions from asparagus were extracted with 50% ethanol, separated using chloroform by liquid-liquid phase separation, and fractionated by solid-phase extraction. Among them, acetone fraction (rich in glycolipid) and MeOH fraction (rich in phospholipid) markedly inhibited β-hexosaminidase release from RBL-2H3 cells. In NC/Nga mice treated with picryl chloride, atopic dermatitis was alleviated following exposure to the 50% EtOH extract, acetone fraction, and methanol fraction. The inhibitory effects of asparagus fractions <i>in vivo</i> were supported by the significant decrease in serum immunoglobulin E (IgE) levels. The phospholipid fractions showed significantly better inhibitory effects, and phosphatidic acid from this fraction showed the best inhibitory effect on β-hexosaminidase release. In mice challenged with ovalbumin (OVA), oral administration of asparagus extract and its fractions decreased the OVA-specific IgE level and total IgE, indicating that these effects may be partly mediated through the downregulation of antigen-specific IgE production. Taken together, the present study shows for the first time that asparagus extract and its lipid fractions could potentially mitigate allergic reactions by decreasing degranulation in granulocytes. Our study provides useful information to develop nutraceuticals and functional foods fortified with asparagus.</p>
keyword	anti-allergy; asparagus; degranulation; phospholipids; β -hexosaminidase.

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