

Accepted Manuscript

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PII: S0963-9969(17)30734-2
DOI: doi:[10.1016/j.foodres.2017.10.054](https://doi.org/10.1016/j.foodres.2017.10.054)
Reference: FRIN 7102
To appear in: *Food Research International*
Received date: 11 July 2017
Revised date: 18 October 2017
Accepted date: 28 October 2017

Please cite this article as: Yalong Lu, Wenfeng Li, Xingbin Yang , Soybean soluble polysaccharide enhances absorption of soybean genistein in mice. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. *Food Research International* (2017), doi:[10.1016/j.foodres.2017.10.054](https://doi.org/10.1016/j.foodres.2017.10.054)

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Soybean soluble polysaccharide enhances absorption of soybean genistein in miceYalong Lu^a, Wenfeng Li^{a,b,*}, Xingbin Yang^{a,*}

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Abstract

This study was designed to probe the promoting effects of soybean soluble polysaccharide (SSPS) on bioavailability of genistein in mice and the underlying molecular mechanism. Male Kunming mice (n = 8) were administered intragastrically with either saline, SSPS (5 mg/kg·bw), genistein (100 mg/kg·bw), or SSPS (5 or 50 mg/kg·bw) together with genistein (100 mg/kg·bw) for consecutive 28 days. UPLC-qTOF/MS analysis showed that co-administration of SSPS and genistein in mice caused significant elevation in the urinary levels of genistein and its metabolites ($p < 0.05$). Furthermore, the fecal excretion of genistein was also enhanced by co-administration of SSPS. However, the feces level of dihydrogenistein, a characteristic metabolite of genistein degraded by gut microorganism, was dose-dependently decreased by the combined treatment of SSPS. Additionally, co-treatment of SSPS with genistein also decreased the small intestinal levels of uridinediphosphate-glucuronosyltransferase (UGT), sulfotransferase (SULT), P-glycoprotein

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