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Polysaccharide isolated from wax apple suppresses ethyl carbamate-induced oxidative damage in human hepatocytes

Key words: Wax apple polysaccharide; Polysaccharide characterization; Ethyl carbamate; Hepatic oxidative stress

Research Summary

In this study, water-soluble polysaccharide (WAP) was isolated from this plant and its protective effects against ethyl carbamate (EC)-induced oxidative damage was evaluated in human hepatocytes (L02 cells). WAP has the potential as an important therapeutic agent or supplement for hepatic oxidative damage. Meanwhile, further studies are needed to prove the above effects *in vivo* at the biological and clinical levels.

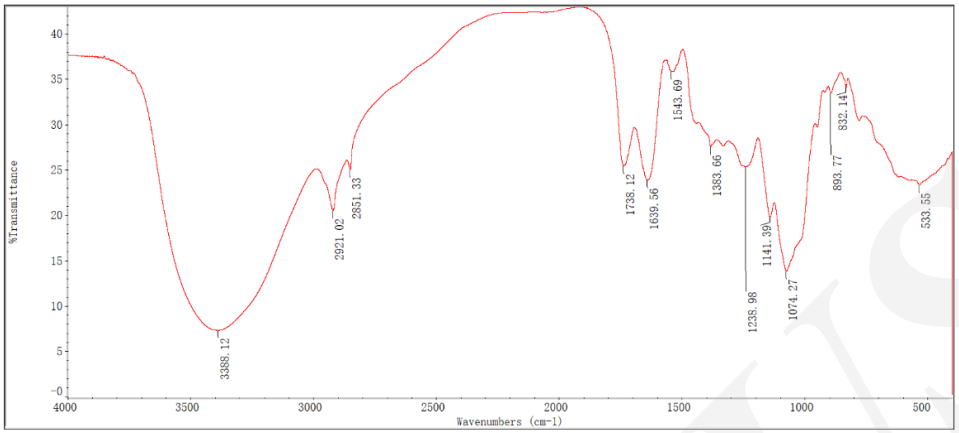


Wax apple
(*Syzygium samarangense*)

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Innovation points

FT-IR spectra of wax apple polysaccharide (WAP).



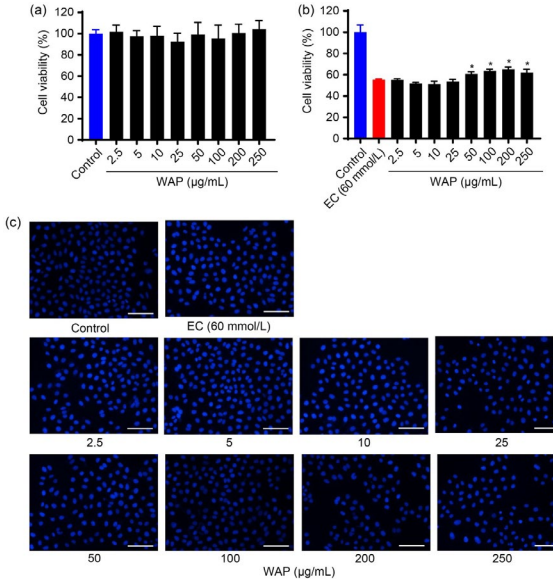
Results of WAP methylation analysis

Methylated sugars	Linkage types	Molar ratios (%)	Mass fragments (m/z)
2,3,5-Me$_3$-Ara*f*	Ara*f*-(1→	9.3	43, 57, 71, 85, 101, 117, 131, and 161
2,3,4,6-Me$_4$-Glc*p*	Glc*p*-(1→	6.1	43, 57, 71, 85, 101, 117, 129, 145, 161, and 205
3,5-Me$_2$-Ara*f*	→2)-Ara*f*-(1→	19.4	43, 57, 71, 85, 101, 117, 129, 145, 161, and 190
2,4,6-Me$_3$-Gal*p*	→3)-Gal*p*-(1→	16.6	43, 57, 71, 85, 101, 117, 129, 143, 149, 161, 173, an
2,5-Me$_2$-Ara*f*	→3)-Ara*f*-(1→	26.0	43, 57, 71, 85, 99, 117, 129, 149, 161, 173, and 233
2,3,4-Me$_3$-Gal*p*	→6)-Gal*p*-(1→	22.5	43, 49, 57, 71, 87, 99, 101, 117, 129, 161, 189, and

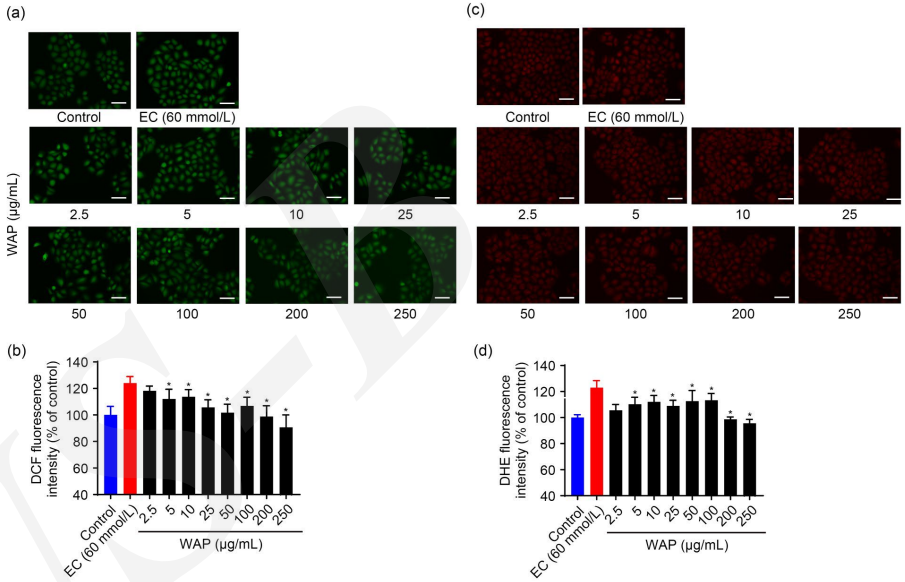
Note: Ara, arabinose; Gal, galactose; Glc, glucose.

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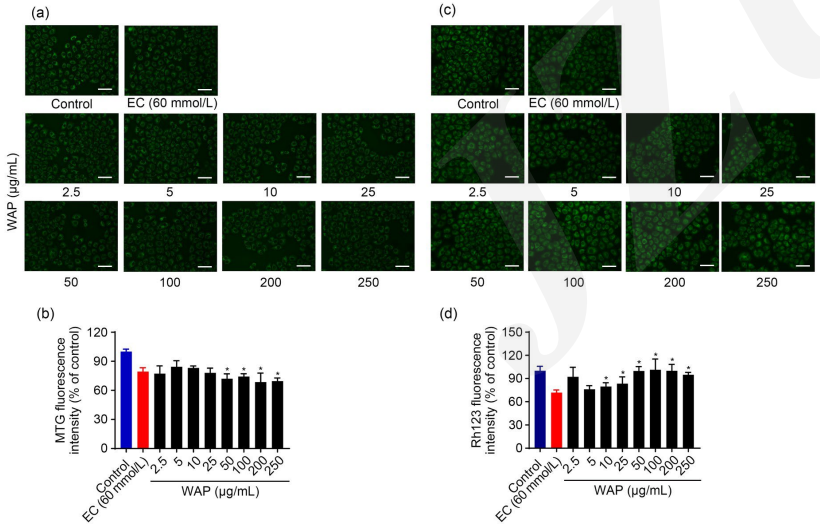
Innovation points



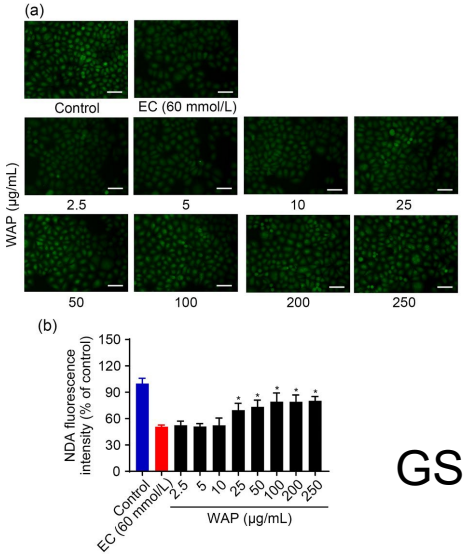
Cytotoxicity and genotoxicity



ROS and superoxide anion accumulation



Mitochondrial dysfunctions



GSH depletion