Phenolic acids should receive comparable or even more respect as flavonoids

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How atherosclerosis develops and progresses?

1913, Lipid hypothesis

1973, Response-to-injury hypothesis

1989, Oxidation modification hypothesis

1995, Response-to-retention hypothesis

1999, Inflammation hypothesis
How to prevent and treat atherosclerosis?

Plant-based foods are promising candidates combating atherosclerotic diseases.

Photochemical (non-nutrient) might be one contributor.

Figure 1. Prospective cohort studies of cardiovascular disease and consumption of fruit and vegetables

Figure 2. Prospective cohort studies of cardiovascular disease and consumption of nuts

Figure 3. Prospective cohort studies of cardiovascular disease and consumption of whole grains

Polyphenols
Regarding to the atheroprotective role of polyphenols, phenolic acids should receive comparable or even more respect as flavonoids.

- After oral intake, flavonoids are intensively transformed into phenolic acids.
- Phenolic acids exert biological effects related to the pathogenesis of atherosclerosis.

Two major reasons:

- After oral intake, flavonoids are intensively transformed into phenolic acids.
- Phenolic acids exert biological effects related to the pathogenesis of atherosclerosis.
Protocatechuic acid is the major human metabolite of cyanidin-3-glucoside.

Cyanidin-3-glucose, one specific flavonoids

transformed into

73%

Protocatechuic acid, one specific phenolic acids

My major findings

① Gut microbiota metabolizes cyanidin-3-glucoside into protocatechuic acid

② Protocatechuic acid partially mediates the atheroprotective of cyanidin-3-glucoside through repressing miRNA-10b

③ Protocatechuic acid exerts anti-inflammatory, anti-monocyte infiltration, and promoting macrophage cholesterol efflux
Foods rich in cyanidin-3-glucoside

Foods rich in protocatechuic acid

Red Chicory

Green Chicory
Thanks for your attention and helpful suggestions!