**Conformational characterization and *in vitro* fermentation profiles of flaxseed rhamnogalacturonan-I (RG-I)**

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Flaxseed (*Linum usitatissiumum* L.) is rich in dietary fibres (22-28%, w/w), among which 10-12% (w/w) of dietary fibres are from flaxseed kernel, and 3-5% (w/w) of soluble dietary fibres are from flaxseed mucilage. Rhamnogalacturonan-I (RG-I), xyloglucans, and arabinoxylans are the major dietary fibre fractions in flaxseed, and their molecular structures have been elucidated in our previous studies1,2,3,4. However, the information on the relationship between primary structure and conformation of flaxseed RG-I (from either kernel or mucilage) is still limited from previously published papers. In this study, the conformational characteristics of flaxseed kernel RG-I (FK-R) and flaxseed mucilage RG-I (FM-R) were investigated using multi-angle light scattering, and further simulated by computer modelling. The short-chain fatty acids (SCFA) profiles of FK-R and FM-R were compared through *in vitro* fermentation of pig colonic digesta with psyllium arabinoxylans as the reference fibres. Flaxseed RG-I were relatively slower fermentable dietary fibres compared with psyllium fibres, and FK-R and FM-R had higher level of total SCFA production than psyllium fibres after 72 h incubation. FK-R and FM-R showed similar trends on acetic acid, propionic acid, and total SCFA production, while the cultures grown with flaxseed mucilage RG-I (FM-R) had higher level of SCFA production. The structural and conformational characteristics played major roles in promoting specific SCFA, and contributed to the difference of fermentability rates.

*References:*

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