

Polysaccharides from brown algae: relationship between structure and function

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Kombu is an important ingredient used in the dashi soup of Washoku. Although the umami component is attracting attention as a feature of Kombu, it also contains fucoidan as a functional polysaccharide. Fucoidan is a sulfated polysaccharide with L-fucose as the main chain, and the structure differs sugar compositions, glycosidic bonds, and sulfate group content depending on the seaweed species and collection date. Fucoidan has been reported to have functions such as anti-inflammatory and antioxidant activity. Although the relationship between fucoidan structure and function has been pointed out, the detailed relationship remains unclear. In this study, we investigated the structural characteristics of Japanese Kombu (*Saccharina japonica*) depending on the collection date. Fucoidan was obtained from Kombu powder by hot water extraction. The supernatant was added calcium chloride to remove alginic acid, and the supernatant was lyophilized to obtain crude fucoidan after dialysis. Crude fucoidan was separated by anion-exchange column chromatography. Fucoidan structure was confirmed by FT-IR. The amount of crude fucoidan in Kombu from March to June was stable. Crude fucoidan was separated into three peaks by chromatography (P1, P2, and P3). Among them, the latest peak (P3) had a large number of sulfate groups compared to P2 and P1. We now plan to clarify the relationship between sulfate groups and functionality.

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