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Red currant pectin: The physicochemical characteristic of pectin solutions in dilute and semi dilute regimes

Publication date:	01.04.2021
Publication title:	Red currant pectin: The physicochemical characteristic of pectin solutions in dilute and semi dilute regimes
Authors:	Jolanta Jaschik, et al.
Journal information:	Food Hydrocolloids

In this study red currant was used as a source of pectin. The aim of this study was to investigate the physicochemical properties of obtained polysaccharide, with an emphasis on behaviour in aqueous solutions. Pectin was obtained using water extraction, then the basic characteristics of the obtained polysaccharide was performed (FT-IR-ATR, molar mass distribution, sugar composition, DE). An applied extraction method resulted in a water-soluble pectin fraction with kg mol-1 and . To study the behaviour of pectins in aqueous solutions various methods were used: membrane osmometry, viscosity measurements, rheology, NMR and DLS. The obtained results allowed to describe pectin chains properties in both dilute and semi-dilute regimes, including value determination. Osmotic tests indicated low water affinity and strong intermolecular interactions for red currant pectin. Viscosity measurements revealed strong polyelectrolyte behaviour, initially the reduced viscosity of the solutions decreased, until the overlap concentration (g dL-1) was reached and then increased sharply. Comprehensive interpretation of the results obtained by means of used methods allowed to conclude that red currant pectin takes the form of tightly wound coils in dilute solutions, with increasing concentration chains tending to expand and intermolecular interactions are being enhanced, which result in the formation of complex structures.

Metryczka

Published by:	Marek Tańczyk
Published at:	08.05.2026 14:46
Number of views:	16