

## Abstract

A novel water-soluble polysaccharide from *Pleurotus eryngii* residue was isolated and further purified by DEAE cellulose-52 chromatography and Sephadex G-100 size-exclusion chromatography to yield PEPE-1, PEPE-2 and PEPE-3. Molecular weights were determined by high-performance size-exclusion chromatography (HPSEC). Gas chromatography (GC) analysis of monosaccharide composition confirmed that PEPE-1, PEPE-2 and PEPE-3 were heteropolysaccharides and mainly composed of glucose. Sulfate and uronic acid content, ultraviolet and infrared spectrum were also evaluated. The antitumor activities of the polysaccharides against HepG-2 cells were studied in vitro. Results showed that the three polysaccharides could suppress the proliferation and enhance lactate dehydrogenase (LDH) release of HepG-2 cells in a dose- and time-dependent manner. The effect increased in the order of PEPE-1 < PEPE-2 < PEPE-3, respectively. The same order was also observed with uronic acid content. Findings presented in this study suggested that the polysaccharides extracted from *P. eryngii* residue might be suitable for functional foods and natural antitumor drugs development.