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The Effect Mechanism of Ultrasound on the Structure and Biological Activity of Polysaccharide Isolated from *Coprinuscomatus*

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The effect of ultrasonic extraction on the structure and biological activity of polysaccharides exert important biological significance and potential value. In this paper, the effect mechanism of ultrasonic extraction on the structure and biological activity of polysaccharides was studied. The chemical structures of WCP3a and UCP3a were analyzed by HPLC, GC, GC/MS and their antioxidant activity in vitro were also measured. The results indicated that (1) The WCP3a was composed of mannose, glucose and galactose, but UCP3a was composed of mannose and glucose; (2) WCP3a contained (1→4,6)-linked- α -D-mannose, (1→)-linked- α -D-mannose, (1→3)-linked- α -D-glucose, and (1→2,6)-linked- α -D-galactose residues, comparing with UCP3a which containing (1→4,6)-linked- α -D-mannose, (1→)-linked- α -D-mannose, (1→3)-linked- α -D-glucose, and (1→4)-linked- α -D-glucose residues; (3) WCP3a and UCP3a can remove the superoxide anion effectively, and the antioxidant activity of UCP3a in vitro was higher than that of WCP3a; (4) Galactose, the monosaccharide composition of polysaccharide isolated from *Coprinuscomatus*, was transformed to glucose treated by the ultrasound, and the conversion rate first increase and then drop with increasing of ultrasound power and treatment time.