I prefer:

□ ORAL presentation

□ POSTER presentation

**Optimization of the Preparation Process of Angelica Polysaccharide Iron by Orthogonal Design**

Zhao Zihan1\*, Su Jianqing2

\*lead presenter

13525462421@qq.com, College of Agronomy and Agricultural Engineering, Liaocheng University,China

2 College of Agronomy and Agricultural Engineering, Liaocheng University,China

**Abstract:**

**Background/Objective:** [To explore the nature of yam polysaccharides and the bioactivity of their carboxymethylated derivatives in depth]

**Methods:** [We employed an ultrasound-assisted method to extract polysaccharides from yam in this experiment. This extraction method is not only highly efficient but also environmentally friendly, as it does not damage the integrity of plant cells and active components, ensuring that the obtained polysaccharides contain a high concentration of active substances. Meanwhile, we further modified the extracted yam polysaccharides with carboxymethylation through alkalinization with organic solvents to enhance their physicochemical properties and biological activities. Using the degree of carboxymethyl substitution as the index, the structure of yam polysaccharides before and after modification was characterized by ultraviolet spectroscopy, and the antioxidant properties of yam polysaccharides before and after modification were compared.]

**Results:** [The experimental results showed that the extraction rate of yam polysaccharide reached 4.08%, the degree of substitution of carboxymethylated yam polysaccharide was 0.367, and the DPPH radical scavenging rate was as high as 73.6% at a mass concentration of 5 mg/mL.]

**Conclusion:** [These data clearly indicate that carboxymethylation modification of yam polysaccharide can enhance their antioxidant activity, making them more effective in resisting free radical-induced oxidative damage.]

**Keywords:** [Yam Polysaccharides; Carboxymethylation; Degree of substitution; Antioxidant properties]