

十一、研究計畫英文摘要：請就本計畫要點作一概述，並依本計畫性質自訂關鍵詞。

(一) 計畫英文摘要。(五百字以內)

The seeds of jujube, *Sterculia lychnophora* are nutraceutically valued edible plants that are widely used in food products and herbal medicine for thousands years in the Orient, especially in China. They are abundant of nutrients, such as protein, polysaccharides, organic acids, vitamins, minerals and bioactivators. Several reports indicated that the extracts of these seeds exhibited antioxidant activities, inhibitory activity of nitric oxide, improve fatty liver and hepatitis, anti-anxiolytic effect, anti-inflammatory, and antiviral ability. Although there are some research projects of these samples have been conducted during the past decades, most of them are focused on antioxidant activity of their extracts. It is seldom to find out articles that work on the physicochemical and physiological test. According to the results of our preliminary experiment, extracts of polysaccharides increased with the increase of temperature and ultrasonic extraction. The infrared spectrum of polysaccharides demonstrated that the structures of polysaccharides did not influence by the method of temperatures and ultrasonic extraction. The monosaccharide compositions of their polysaccharides are xylose, rhamnose, galactose, and glucose primarily. Due to high content of uronic acids, these polysaccharides are belonged to acidic sugars naturally. The results also indicated that the addition of polysaccharides of these seeds enhanced the growth of *Bifidobacterium spp.* More studies on different sources of polysaccharides are necessary to carry out in this project.

The purposes of this study are to investigate the effect of temperatures and ultrasonic extraction on the content and physicochemical properties of polysaccharides. This two years project will investigate several targets as the follows. The first year of this project will achieve (1) the chemical and nutritional compositions (2) the effect of temperature and ultrasonic devices on the extracts of polysaccharides (3) effect of extract solvents on the content of total polyphenolics, flavonoids, and antioxidative activity. The second year will include (1) evaluation of safety of mutation (2) Evaluation of probability of polysaccharides work as probiotics. Throughout this project, the results of these experiments can provide scientific evidences to evaluate the potential of clinical therapy of three traditional herbal medicines. The results also recognize the effect of extracted methods and sources of plant on the physicochemical and physiological properties of polysaccharides.

Keywords: Jujube, *Sterculia lychnophora*, Extracted methods, Polysaccharides compositions, Antioxidation, Prebiotics