

**UNIVERSITI TEKNOLOGI MARA**

**PHARMACOGNOSTICAL AND  
PHYSICOCHEMICAL STUDIES OF *ALLIUM*  
*FISTULOSUM* LEAVES**

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## ABSTRACT

*Allium fistulosum* (Liliaceae), also known as “kucai”, is used by local people in Malaysia to treat cold and abdominal disorders as well as to drain pus from sores, boil and abscesses. This recent study aimed to generate various parameters of pharmacopoeial standards of this species such as macroscopic characteristics, loss on drying, total ash, extractive value and thin layer chromatography profiles. Most of the methods were based on World Health Organization (WHO) guidelines for quality control methods for medicinal plant materials. Powdered leaves of the plant showed high moisture content which could be represented by loss on drying ( $20.63\% \pm 0.2$ ). Water soluble extractive value ( $28.17\% \pm 4.2$ ) of the plant was approximately 3 times higher than ethanol extractive value ( $9.9\% \pm 0.2$ ). Determination of total ash value gave result in  $16.57\% \pm 0.0033$ . TLC of three different extracts which are hexane, chloroform and ethanolic extracts, using chloroform as mobile phase and silica gel as stationary phase showed 5-7 clearly spots that were detected under daylight and UV light (254 and 365 nm). The results of the study could be useful in setting some parameters for identification and preparation of a monograph of the plant.

# CHAPTER 1

## INTRODUCTION

### 1.1 Background of the study

*Allium fistulosum* L. is one of species in family Liliaceae that is well known as *kucai* by Malaysian people (Evans, 2002; Wan Hassan, 2007). This species has high economic significances as well as other species such as *A. cepa* (bulb onion and shallot), *A. sativum* (garlic), *A. ampeloprasum* (leek, kurrat, great-headed garlic, and pearl onion), *A. schoenoprasum* (chives) and *A. tuberosum* (Chinese chives) (Kamenetsky & Rabinowitch, 2006). This plant is popular in cooking field where commonly becomes ingredient in Asian recipes and set in western salad. Additionally, this species also plays important role in herbal or traditional medicine. The aqueous extract of Welsh onion green leaves of *A. fistulosum* could possess effects of anti-cholesterol accumulation activity in vascular walls and prevent progress of atherosclerosis under inflammatory stress (Duh et al., 2008). Besides, according to dictionary of Chinese herbal medicine, the bulb of this plant can be used for treatment of febrile disease, headache, abdominal pain, diarrhea snakebite, ocular disorder, and habitual abortion as well as having antifungal and antibacterial effects (Jiangsu New Medical College, 1986). Meanwhile, Malaysian used this plant traditionally for the treatment of colds and abdominal disorders. The bulb poultice is