# CHAPTER 1

# Introduction

## 1.1 Statement of the Problems

*Polyalthia* is a genus of flowering plants in family Annonaceae which consist about 120 species of shrubs and trees. This genus is extensively distributed in tropical and subtropical areas [1]. In addition, it is widely used in traditional medicine in many tropical countries such as India [2], Thailand [3] and Malaysia [1].

Previous chemical investigations of this genus found some aporphines [4–9], tetrahydroprotoberberines [6, 10], sesquiterpenylindoles [11, 12], isoquinolines [9, 13], flavonoids [14], azafluorenes [15], terpenes [16], clerodane diterpenoids [17–20], furans [21], acetogenins [22], prenylated benzopyrans [23, 24], polyacetylenes [3], styryl-lactones [25], chalcones [1], polyphenolics [26] and other chemical constituents were reported from *Polyalthia* genus [27].

From various *Polyalthia* species many constituents exhibited cytotoxic [28, 29], antifungal, antiviral [21], antimicrobial [21, 30, 31], antimalarial [8, 9], anti-HIV [32], antibacterial [33] and anticancer activities [21, 26, 34, 35]. In India, it has been used as bitter tonic, abortifacient, febrifuge, scorpion sting cure, high blood pressure medication and as a respiratory stimulant [2]. *P. evecta* var. *evecta* has been used by the north-eastern natives as a galactagogue in Thailand [3] and Malaysia [1]. Additionally, *P. bullata* has been used as traditional medicine in Malaysia such as general tonic for men, treatment for skin problems, high blood pressure medication, treatments for diabetes and liver diseases [36].

Due to the tremendous uses in medicinal applications of *Polyalthia*, therefore this research aims to investigate the chemical constituents and biological activities

of *P. evecta* var. *attopeuensis* and *P. bullata* King. Moreover, there is no research work has been published on this variety of *P. evecta* and few reported of *P. bullata*.

**1.2 Objectives**

1.2.1 To investigate the chemical constituents and biological activities from the aerial parts of *P. evecta* var. *attopeuensis*.

1.2.2 To investigate the chemical constituents and biological activities from the aerial parts of *P. bullata* King.