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Beyond Classical Approaches

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MOLECULAR IDENTITY OF *AGERATUM CONYZOIDES* L

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ABSTRACT

Ageratum conyzoides L is a plant which belongs to *Asteracea* family. Common names for this plant include goat weed, chick weed, tropical white weed, floss flower and to the Malaysians it is known as "rumput tahi ayam". In some countries it is considered as weeds as their growths are highly abundant and difficult to control. Nevertheless, it has been used as a traditional medicine or herb to treat diarrhea, pneumonia, spasm, fever and to heal burn wounds. Furthermore, this plant has been shown to possess a biological activity against bacteria. With a variety of herbs available in the market which they may look similar makes the identification of a particular herb may be difficult. A molecular profile can act as a signature for a particular plant species. Different species will have a different profile pattern, thus, these profiles can be used for identification and authentication of the medicinal herbs. Level of variations within the plant species may also be detected by looking at the patterns of the profiles. One of many techniques that could be applied in generating the molecular profile is Random Amplified Polymorphic DNA (RAPD) which is fast and simple. Samples collected from four different locations in Sarawak were studied. Using sodium dodecyl sulfate extraction method, a good quality of DNA was successfully isolated and the molecular identity of this plant species was successfully revealed via RAPD-PCR technique.

Key words: *Ageratum conyzoides* L, RAPD, molecular profile.

INTRODUCTION

Ageratum conyzoides L is a native plant in Central America and Caribbean. Today it is widespread in tropics and subtropics regions. Common names for this plant include goat weed, chick weed, tropical white weed, floss flower and to the locals in Malaysia it is known as "rumput tahi ayam". In some countries *Ageratum conyzoides* L is considered as weeds due to their growths that are highly abundant and difficult to control (Ming, 1999). Nevertheless, this plant which belongs to the family of *Asteracea* has been used as a traditional medicine in treating diarrhea, pneumonia, spasm, fever and to heal burn wound (Ming, 1999; Tropical Database, 1996). Furthermore, it has been shown to possess a biological activity against bacteria such as *Staphylococcus aureus* (Okwori *et. al.*, 2007). This plant was found to have a range of bioactive compounds which include chromenes, benzofurans, cumarins, alkaloids, flavonoids and tannins (Okwori *et. al.*, 2007; Tropical Database, 1996).

There is a variety of herbs available in the market and some of them may similar in morphological appearance which makes the identification of a particular herb may be difficult. In order to distinguish them is by looking the plant at the molecular level. DNA profiling can be used in revealing its molecular identity. A DNA profile generated can act as a signature for a particular plant species. Different species will have a different DNA banding pattern. This profile, therefore, can be used for identification and authentication of the medicinal herbs (Shaw *et al.*, 2002). Even more, level of variations within the plant species can be detected by simply looking at the profile patterns (Shaw *et al.*, 2002). One of many techniques that could be applied in generating DNA profiles is Random Amplified Polymorphic DNA (RAPD). RAPD has several advantages over others techniques such as it is simple, rapid, sensitive, require lower concentration of DNA samples and no prior knowledge of the organism's DNA sequences is required (Williams *et al.* 1990). RAPD is a method that based on the amplification of random DNA segments using single ten-base synthetic DNA arbitrary primers (Welsh *et al.* 1991). This technique has been successfully used for identification of plant species which include herbs and determination of the genetic variation level