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Short Communication

TLC PROFILING OF *PSIDIUM GUAJAVA* L. METHANOL LEAF EXTRACTS

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ABSTRACT
The methanol leaf extract of *Psidium guajava* L. was prepared and investigated for the existence of chemical constituents using thin layer chromatography (TLC). It was concluded that *P. guajava* methanol leaf extracts possess numerous of chemical constituents represented by different retention factor (R_f) values.

KEYWORDS: *Psidium guajava* L., thin layer chromatography (TLC), retention factor (R_f).

INTRODUCTION

Over decades, *Psidium guajava* L. were known as a tree which served the food crop and medicinal plant in tropical and subtropical countries around the world. All of the guava tree parts are useful to human as it serves many useful properties instead of food and medicine. Guava has been used widely in pharmacological, traditional, clinical and analysis of chemical constituents. These trees give a good yield of useful chemical constituents which possess numerous of biological activities belong to alkaloid, flavonoid, triterpene, saponin, terpenoid, carotenoid, and tannin. Most of these active chemical constituents presents within guava fruits and leaves. Due to the presence of these active chemical constituents had turned guava tree into a tree that were active with pharmacological activities such as anti-allergy, cytotoxic, antimicrobial, hepatoprotection, antioxidant and antimicrobial (Gutiérrez *et al*., 2008).

Previous studies performed on *P. guajava* leaves have resulted in the presence of essential oil such as cineol,

$$R_f = \frac{\text{Distance travelled by the substance}}{\text{Distance travelled by the solvent}}$$

tannins and triterpenes. There were also three different types of flavonoids as quercetin, avicularin and guaijaverin isolated from the leaves (Khadem and

Mohammed, 1959). The use of thin layer chromatography (TLC) plate for extracts profiling, will indicate the presence of numerous chemical constituents represented by different retention factor (R_f) values, without revealing the exact names for each compounds. The objective of this study was to examine the presence of chemical constituents within *P. guajava* methanol leaf extracts.

MATERIALS AND METHODS

Plant material

The fresh leaves of *Psidium guajava* were collected from university agricultural park, Universiti Putra Malaysia, Serdang, Selangor. The fresh leaves were clean under running tap water and leaves to dry for two weeks at room temperature. Dry leaves were crushed with coffee grinder into fine powder and stored in an air tight container for further use.

Plant extraction

Two hundred grams of *P. guajava* leaves powder was soaked into 2 L of absolute methanol and left at room temperature for two days with occasional shaking. The extracts were filtered through Whatman No. 1 filter paper into a clean flask and lyophilized to dryness using rotary evaporator. The dry extracts obtained than were kept in freezer at 4°C until further use.

Sample application and development

A volume of 10 µl of methanol extract was applied on 2 x 5 cm silica gel 60 F_{254} plate of 0.2 mm thickness. The plate was then developed in a solvent system hexane : ethyl acetate (7 : 3) and visualized under normal daylight. The R_f values were calculated for each bands revealed under daylight. The formula used for R_f values calculation was as followed.

RESULTS AND DISCUSSION

The presence of number of chemical constituents was proved through TLC profiling. Different R_f values represent different chemical constituents presents within methanol leaf extract of *Psidium guajava.* Daylight visualization was done as the compound exist on TLC plate surface were naturally colored and easily can be detected and calculated for R_f values. From the experiment conducted, there were six visible spots were detected when visualized under daylight as shown in Figure 1. The R_f values for each spot were as depicted in Table 1

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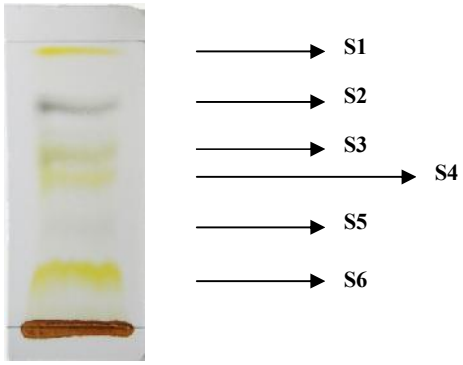

FIGURE 1: TLC spot visualization of *Psidium guajava* methanol leaf extract under daylight

TABLE 1: The retention factor (R_f) values of *Psidium guajava* methanol leaf extract visualized under daylight

Spots	R_f
1	0.98
2	0.78
3	0.62
4	0.54
5	0.35
6	0.19

CONCLUSION

The different R_f values obtained from TLC profiling of *Psidium guajava* methanol leaf extracts indicated the presence of numerous of active chemical constituents within the extracts.

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