

Phytochemical Studies of *Rhodomyrtus tomentosa* Leaves, Stem and Fruits as Antimicrobial and Antioxidant Agents

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ABSTRACT *Rhodomyrtus tomentosa*, or kemunting (local name) is a well-known medicinal plant used to treat various sickness. *R. tomentosa* is native to southern and south-eastern Asia. The chemical constituents from leaves, stems and fruits of *R. tomentosa* was determined. The antibacterial and antioxidant activity of the crude extract and isolated compounds was performed. Screening and assay-guided isolation technique was performed upon the plant extract against Gram-positive and -negative bacterial strain, namely *Escherichia coli* and *Staphylococcus aureas*. In vitro antioxidant activity of the extract will also be assessed by 2,2-diphenylpicrylhydrazyl (DPPH) assay. The successful isolated compounds were also evaluated for their antibacterial and antioxidant activity.

KEYWORDS: *Rhodomyrtus tomentosa*; assay-guided isolation; antibacterial activity; antioxidant activity; DPPH assay; *E. coli*; *Staphylococcus aureas*.

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INTRODUCTION

R. tomentosa is a member of the Myrtaceae plant family native to Indian Sub-continent, China and South-East Asia. The plant is mainly growing along coastal shores, wetlands and riparian zones, from sea level up to 2400 m elevation (Csurhes & Hankamer, 2016). The plant can grow up to 1-2 m tall, and sometimes 3 m in height. The leaves are oval in shape, and rounded tips. The flowers have five bright pink petals that fade to pale pink as they age. It has five sepals at the base and numerous stamens in the centre. The fruits are edible, oblong-shaped berry, and crowned by the persistent sepals (Navie, 2013). Previous studies on this plant had show antibacterial activity of ethanolic leaves extract against *Streptococcus pyogenes* (Limsuwan *et al.*, 2012; Mordmuang *et al.*, 2015). *R. tomentosa* extract possesses potential anti-inflammatory and antiulcer activity, and can serve as a potent antioxidant (Geetha *et al.*, 2010; Lavanya *et al.*, 2012; Jeong *et al.*, 2013). Studies conducted on *R. tomentosa* fruits had show antioxidant properties due to present of phenolic compounds (Lai *et al.*, 2012; Cui *et al.*, 2013; Lai *et al.*, 2014). There are lacks of studies in details on stems and fruits of *R. tomentosa*, further studies on other parts of the plants should be performed. Therefore, the aims of this study are to investigate the chemical constituents from leaves, stems and fruits of *R. tomentosa* and to evaluate the antibacterial and antioxidant activity of the crude extracts and the isolated compounds *via* assay-guided isolation.

METHODOLOGY

General Methods

Assay guided isolation was performed on *R. tomentosa* leaves, stems and fruits extract to determine the compounds which possessed potent antimicrobial and antioxidant activity. Leaves,