



Flavonoids isolated from *Syzygium aqueum* leaf extract as potential antihyperglycaemic agents

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Abstract

Syzygium aqueum is a medicinal plant which is grown in tropical regions. In this study, the ethanolic extracts of *S. aqueum* leaf were investigated for its antihyperglycaemic activity. Our investigation revealed its effectiveness in inhibiting the carbohydrate hydrolysing enzymes, α -glucosidase ($EC_{50} = 11 \mu\text{g/ml}$) and α -amylase ($EC_{50} = 8 \mu\text{g/ml}$), at significant level than the commercial drug acarbose ($EC_{50} = 28 \mu\text{g/ml}$, α -glucosidase; $EC_{50} = 12 \mu\text{g/ml}$, α -amylase). In addition, the ethanolic leaf extracts were able to inhibit the key enzyme in the polyol pathway, aldose reductase ($EC_{50} = 0.03 \mu\text{g/ml}$) and prevent the AGEs formation by 89%. Six flavonoid compounds, 4-hydroxybenzaldehyde (1), myricetin-3-*O*-rhamnoside (2), europetin-3-*O*-rhamnoside (3), phloretin (4), myrigalone-G (5) and myrigalone-B (6), were isolated from the ethanolic leaf extracts. Compounds (2) and (3) showed high inhibitory activities, with EC_{50} values of $1.1 \mu\text{M}$ and $1.9 \mu\text{M}$ against α -glucosidase and EC_{50} values of $1.9 \mu\text{M}$ and $2.3 \mu\text{M}$ against α -amylase, respectively. These findings provide a strong rationale to establish *S. aqueum*'s capability as an antihyperglycaemic agent.