



## NOTE

### Antibacterial Bioassay Screening of 2'-*o*-Ethylmurrangatin: A Secondary Metabolite Obtained from *Murraya paniculata*

AZIZUDDIN<sup>1,\*</sup>, SANA MUSTAFA<sup>1</sup> and SAIMA KHALIQ<sup>2</sup>

<sup>1</sup>Department of Chemistry, Federal Urdu University of Arts, Science & Technology, Gulshan-e-Iqbal Campus, Karachi-75300, Pakistan

<sup>2</sup>Department of Biochemistry, Federal Urdu University of Arts, Science & Technology, Gulshan-e-Iqbal Campus, Karachi-75300, Pakistan

\*Corresponding author: Tel: +92 333 2243153; E-mail: azizpobox1@yahoo.com

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2'-*o*-Ethylmurrangatin (**1**) is a secondary metabolite, which was obtained from the methanolic extract of *Murraya paniculata*. Compound **1** was screened for its antibacterial activities. It was found to have moderate activity against *Pseudomonas aeruginosa*.

**Keywords:** Antibacterial bioassay, Rutaceae, *Murraya paniculata*, 2'-*o*-Ethylmurrangatin.

*Murraya paniculata* (L.) Jack (Rutaceae) is commonly known as Orange Jessamine. It is a tropical evergreen plant and widely distributed in Southeast Asia, India, Malay Peninsula and Southern China. The crude ethanolic leaves extract of *M. paniculata* has antinociceptive, antidiarrhoeal and anti-inflammatory activities<sup>1,2</sup>.

We have previously reported 2'-*o*-ethylmurrangatin (**1**) (Fig. 1), a secondary metabolite isolated from *M. paniculata* and its various biological activities were also studied<sup>3</sup>. 2'-*o*-Ethylmurrangatin (**1**) had showed moderate activity against respiratory burst in human neutrophils and significant lipoxygenase inhibitory activity. Compound **1** was not found to have any activity against acetylcholinesterase, butyrylcholinesterase and prolyl endopeptidase enzymes and DPPH radical scavenging assay<sup>3,4</sup>.

Herein, we reported the antibacterial bioassay screening of 2'-*o*-ethylmurrangatin (**1**).

**Antibacterial bioassay:** Antibacterial bioassay screening was performed using agar well diffusion method. Sample (3 mg) was dissolved in DMSO (3 mL). 45 mL of nutrient agar in molten state was poured on the petri plates, which were sterile. They were allowed to solidify. After that bacterial lawn was made on these nutrient agar plates by dispensing sterile soft agar (7 mL), which contained cultures (100 mL of the test organisms). At the end wells were drugged at appropriate distance with a 5 mm sterile metallic borer, then sample (100 mL) was poured on the plates into each well and were incubated for 24 h at 37 °C. The results were recorded as zones

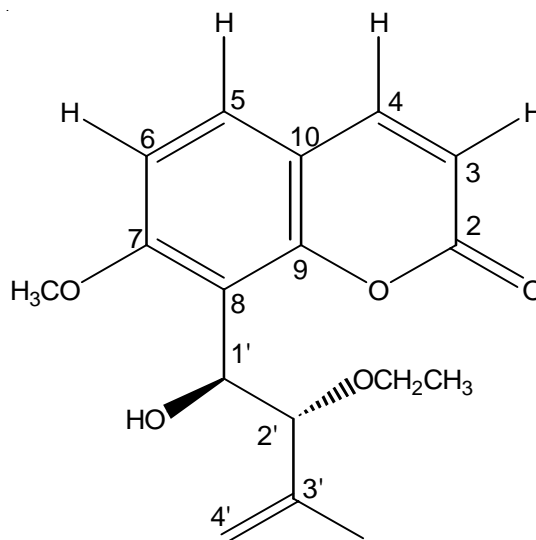


Fig. 1. 2'-*o*-Ethylmurrangatin (**1**) obtained from *Murraya paniculata*

of inhibition. DMSO and imipenem (a drug) were used as negative and positive controls, respectively.

2'-*o*-Ethylmurrangatin (**1**) was screened against various human pathogenic bacterial strains including *Shigella flexneri*, *Staphylococcus aureus*, *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas aeruginosa* and *Salmonella typhi*. It showed moderate *in vitro* antibacterial activity against *Pseudomonas aeruginosa* as compared to imipenem as reference drug (Table-1).

TABLE-1  
*in vitro* ANTIBACTERIAL BIOASSAY SCREENING OF 2'-*o*-ETHYLMURRANGATIN (1)

S. No.	Bacteria tested	Clinical implications	Zone of inhibition of sample (mm)*	Zone of inhibition of standard (mm)**
1	<i>Staphylococcus aureus</i>	Food poisoning; scalded skin syndrome; toxic shock syndrome; infections of upper respiratory tract & wounds; abscesses & endocarditis	NA	43
2	<i>Escherichia coli</i>	Infections of wounds & urinary tract; inflammations of peritoneum & GIT; dysentery; septicaemia; neonatal meningitis	NA	30
3	<i>Bacillus subtilis</i>	Food poisoning	NA	31
4	<i>Shigella flexneri</i>	Acute bloody diarrhea; bacillary dysentery	NA	33
5	<i>Pseudomonas aeruginosa</i>	Infections of wounds, urinary tract & eyes; septicemia	11	25
6	<i>Salmonella typhi</i>	Typhoid fever; salmonella food poisoning; localized infection: pyelonephritis, endocarditis, salpingitis, & chronic osteomyelitis	NA	41

\*2'-*o*-Ethylmurrangatin (1) is used as a sample whose concentration is 1 mg/mL of DMSO, \*\*Imipenem is used as standard drug, NA: stands for no activity.

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