
Antimicrobial Activity and Oral Acute Toxicity Effect of *Cardiospermum halicacabum* Trim Extracts

D.R.S.G. Dissanayake^a, H.H. Peiris^a and A.P. Attanayake^b

^a*Department of Medical Laboratory Science, Faculty of Allied Health Sciences, University of Ruhuna, Sri Lanka.*

^b*Department of Biochemistry, Faculty of Medicine, University of Ruhuna, Sri Lanka.*

Corresponding author: harshinipeiris@ahs.ruh.ac.lk

The acute respiratory tract infections are the most common illness in humans, with a high global burden. The present study was to determine the antimicrobial activity of aqueous, ethyl acetate and hexane extracts of *Cardiospermum halicacabum* Trim (Family: Sapindaceae, Common name: Welpenela) against respiratory tract pathogens and to assess acute oral toxic effects of the above extracts in healthy Wistar rats. The antimicrobial activity was evaluated against a Gram-positive organism; *Staphylococcus aureus* ATCC 25923 and Gram-negative organisms; *Escherichia coli* ATCC 25922 and *Pseudomonas aeruginosa* ATCC 27853. The agar disc diffusion method was performed to estimate the antimicrobial activity according to the Clinical and Laboratory Standards Institute (CLSI) protocols and the diameter of inhibition zones were measured. The actively growing culture suspensions were adjusted by visually comparing with the turbidity of the 0.5 McFarland standard. Gentamycin 10 µg was used for Gram positive and ciprofloxacin 5 µg was used for Gram negative organisms as positive controls. A volume of 20 µL of DMSO was delivered onto filter paper discs as negative controls. Acute oral toxic effects/adverse effects were assessed after a single oral administration of the aqueous extract of *C. halicacabum* to healthy Wistar rats and animals were observed for 14 days. They were observed for morbidity, mortality and clinical signs of toxicity. The aqueous extract of *C. halicacabum* showed antimicrobial activity against *S. aureus* in agar disc diffusion method at a concentration of 100 mg/mL. There was no significant inhibitory activity was observed for any of the extract against *E. coli* and *P. aeruginosa*. Hexane and ethyl acetate extractions were inactivated against the organisms that were tested. No acute toxicity effects/adverse effects were observed in healthy rats, exhibiting the *in vivo* safety at the dose of 1000 mg/kg (equivalent therapeutic dose). The results revealed that the aqueous extract of *C. halicacabum* exert antimicrobial activity against *S. aureus*. Further, the aqueous extract at the therapeutic dose is safe to be used in therapeutic applications.

Keywords: Acute toxicity, Antimicrobial activity, Cardiospermum Halicacabum