

Antimicrobial activity of the ethanolic and aqueous extract of passion fruit (*Passiflora edulis Sims*) in the absence and presence of transition metal salts

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The aqueous and ethanolic extract of passion fruit (*Passiflora edulis Sims*) was investigated in the absence and presence of transition metal salts using the Disc Diffusion Assay under aseptic conditions. For the ethanolic extracts 1-3, the highest AZOI of 153.9 mm² was induced by sample 1; 0.015 g/ml of extract against *C. albicans*. The lowest AZOI of 15.9 mm² was also induced by sample 3; 0.1 g/ml of ethanolic extract against *K. pneumoniae*. There seems to be a general increase in AZOI as the concentration of ethanolic extract increases. From the ethanolic extract, a white isolate crystallized and its antimicrobial activity was investigated at increasing concentration (sample 4-5). For sample 4-5, the highest AZOI of 149.5 mm² was induced by the aqueous solution at a concentration of 0.026 g/ml against *P. aeruginosa*. The lowest AZOI of 30.7 mm² was induced by the white isolate at a concentration of 0.052 g/ml against *K. pneumoniae*. For sample 6 and 7, 0.1g of Zn (OAc)₂·2H₂O in 10 ml aqueous extract and 1.0 g of Zn(OAc)₂·2H₂O in 10 ml of aqueous extract, it was observed that the highest AZOI of 67.2 mm² was observed against *E. coli*, whereas, the lowest AZOI of 21.6 mm² was observed against *C. albicans*. The AZOI induced by sample 8, 1.0 g of Zn (OAc)₂·2H₂O in 10 ml of aqueous solution is greater than sample 7, suggesting that Zn(OAc)₂·2H₂O augment the antimicrobial activity of the aqueous passion fruit extract. Antimicrobial selectivity was also observed. For example, against *S. aureus*, sample 1 exhibit AZOI of 32.2 mm² whereas against *C. albicans*, AZOI of 153.9 mm² was observed. For all experiments conducted, antimicrobial activity seems to be less than that of the standard antibiotics like Ampicillin and Nystatin. Nevertheless, the ethanolic and aqueous extracts of green passion fruit can be used as a natural antibiotic against a range of bacteria induced diseases.

Biography

R C Jagessar has obtained his BSc in Chemistry from the University of Guyana in 1992 and pursued his PhD in the UK which he obtained in 1995. He did Postdoctoral Research in the USA at the University of South Carolina, Wichita State University and later at the University of the West Indies, UWI. His research interests are broad, covering the spectrum of pure and applied chemistry, chemical biology, pharmaceutical and medicinal chemistry. He has won several international awards such as the Chartered Chemist, CChem of the Royal Society of Chemistry, Fellow of the Royal Society of Chemistry, FRSC, Royal Society Chemistry Research Grants etc. He has published 65 full peer reviewed papers, inclusive of four book chapters, exclusive of research abstracts, presented at conferences, both locally and internationally and has been a Reviewer of several international journals. He is currently working as a Lecturer of Chemistry in the Department of Chemistry, University of Guyana.

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