

# Plant Genomics

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## Phytochemical constituents and bioactive properties of *Glinus oppositifolius* (L) Aug. DC., against bacterial pathogens

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This study aimed to determine the presence of bioactive phytochemical constituents and evaluate the *in vitro* antibacterial activities of *Glinus oppositifolius* or carpet weed, a plant valued for its use in traditional medicine and as a vegetable. The leaves, stems and roots were extracted using chloroform, ethanol and methanol. Phytochemical screening revealed that the entire *G. oppositifolius* plant, i.e., roots, stems and leaves, is a rich source of alkaloids, flavonoids, glycosides, saponins, sterols, tannins and triterpenes. The antibacterial activity of the leaf and stem extracts were evaluated through disc diffusion, minimum inhibitory concentration and bactericidal concentration assays against methicillin resistant *Staphylococcus aureus* (MRSA), vancomycin resistant *Enterococcus* (VRE), extended spectrum  $\beta$ -lactamase producing (ES $\beta$ L+), carbapenem resistant Enterobacteriaceae (CRE) and metallo- $\beta$ -lactamase producing (M $\beta$ L+) *Pseudomonas aeruginosa* and *Acinetobacter baumannii*. The leaf extracts revealed antibacterial activities, inhibiting the growth of non resistant and multidrug resistant (MDR) strains of the Gram negative bacteria *E. coli*, *P. aeruginosa* and *A. baumannii*. In conclusion, the various biological activities of *G. oppositifolius*, including its antibacterial activity, are due to the presence of diverse bioactive secondary metabolites. The presence of phytochemical compounds in *G. oppositifolius* is scientific evidence on its use for treatment of many ailments. Thus, the results demonstrate the great potential of the plant as a new, alternative source of antimicrobials and other components with therapeutic value.

### Biography

Juliana Janet Martin-Puzon is currently an Assistant Professor in the Institute of Biology, College of Science, University of the Philippines, Diliman, Quezon City. She has completed her MS in Botany and PhD in Biology majoring in Plant Physiology at the Institute of Biology, College of Science, University of the Philippines and her BS degree in Biology major in Microbiology at the College of Arts and Sciences, University of the Philippines Los Baños. Recently, she has completed a Research Fellowship under the University of the Philippines, Natural Sciences Research Institute, Department of Agriculture, Bureau of Agricultural Research (UP-NSRI/DA-BAR) Post-Doctoral and Senior Scientist Research Fellowship Program. She has published numerous scientific papers in international peer-reviewed journals dealing on her research interests, namely, plant and cell physiology, plant stress physiology, phytochemicals, secondary metabolism (natural products and their bioactivities) and controls of plant growth and development. Notably, she has presented her works through platform and poster presentations in various conferences, both internationally and locally. She has given local seminar-workshops emphasizing on research methods in physiology, particularly the assessment of heavy metal stress tolerance in plants, among others. She also serves as a Referee of papers dealing with her areas of expertise submitted for publication in scientific journals.

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