



### ABSTRACT

Anti-quorum sensing (AQS) refers to the mechanism that prevents Gram-positive and Gram-negative bacteria in using quorum sensing to communicate through signal molecules that trigger behaviors such as biofilm formation, virulence, and antibiotic resistance in response to the density of the bacterial population in order to infect and cause disease to its host. Plants are one of the major sources of chemicals in use today in various industries, and lately, in previous studies, plant extracts showed significant effect on quorum sensing of bacteria through inhibition. The research made use of the methanolic leaf extracts of *Annona squamosa* L. (Atis), *Lagerstroemia speciosa* (L.) Pers. (Banaba), and *Antidesma bunius* (L.) Spreng (Bignay) to detect AQS potential against *Pseudomonas aeruginosa* BIOTECH 1335 and *Staphylococcus aureus* BIOTECH 1582 using different virulence assays. Leaves of the plants were processed for extraction using 80% methanol as solvent. The methanolic extracts were subjected to screening for potential AQS using *Chromobacterium violaceum* ATCC 12472, antibacterial testing, and virulence assays against the test bacteria. Methanolic extracts of *A. squamosa*, *L. speciosa*, and *A. bunius* do not exhibit AQS potential in *C. violaceum*. *A. squamosa*, *A. bunius*, and *L. speciosa* methanolic leaves extracts exhibited no antibacterial activities against *P. aeruginosa* and *S. aureus* except *Lagerstroemia speciosa* that exhibited antibacterial activity in *S. aureus*, hence, not qualified for the virulence assays of *S. aureus*. Virulence assays revealed absence of AQS potential of *A. squamosa* and *A. bunius* against *S. aureus*' alpha hemolysis and DNase tests. Swarming of *P. aeruginosa* was inhibited by *A. squamosa*, *L. speciosa*, and *A. bunius*. Significant reduction in pyocyanin production at 520nm was exhibited by all three methanolic leaves extracts. *L. speciosa* exhibited the highest AQS potential in *P. aeruginosa* pyocyanin production. It is recommended to use other inclusive set of virulence factors in *S. aureus* and *P. aeruginosa* to evaluate AQS activities of extracts.

**Key words:** anti-quorum sensing, virulence, hemolysins, DNase, swarming, pyocyanin