Plants are considered not only as dietary supplement to living organism but also traditionally used for treating many health problems. Medicinal plants and its products are a source of many potent and newer powerful herbal drugs. The active principles of many drugs found in plants are secondary metabolites. About 80% of individuals from developed countries use traditional medicine, which has compounds derived from medicinal plants. The plant kingdom harbors an inexhaustible source of active ingredients invaluable in the management of many intractable diseases. Moreover, the active components of herbal remedies have the advantage of being combined with many other substances that appear to be inactive.

*Justicia gendarussa* belongs to the family *Acanthaceae*. The family *Acanthaceae* is a taxon of dicotyledonous flowering plants containing almost 240 genera and 2200 species. *J. gendarussa* is mostly found throughout the greater part of India and Andaman Islands. It is commonly called as ‘karunotchi’ in Tamil. It is an erect, branched, smooth undershrub 0.8-1.5 m tall. Screening of the phytochemicals from the leaves of *J.gendarussa* disclosed the presence of terpenoid, alkaloid, flavonoids and glycosides. Among them, alkaloid compound of *J.gendarussa*, was found to be most effective against *S.aureus, V. cholerae, E. coli, P. mirabilis* and *P. aeruginosa* at the concentration of 20μg/ml. Partial TLC characterization of Phytochemicals shows the presence of various Phytoconstituents. TLC bioautography assay shows the antibacterial compound at the Rf value of 0.58 exhibits potent antibacterial activity. The alkaloid compound present at the above Rf value are eluted using Column Chromatography and compound structure is characterized using MASS, IR and NMR Spectroscopy techniques. The alkaloid compound is characterized as vasicinone moiety. The Biofilm assay of Pathogenic bacteria shows the alkaloid compound exhibit excellent antibiofilm formation. However, the molecular study of the targeted sample would confirm the hypothesis.