Seabania grandiflora is rare and medicinally important plant belong to the family Fabaceae. Medicinal plants continue to be a source of raw drug in Ayurvedic preparations and for folk medicines. In the present work the phytochemicals are extracted from Sesbania grandiflora leaves using solvents viz., petroleum ether, chloroform, methanol, ethanol and acetone. The study revealed the presence of alkaloids, terpenoids, saponins, flavonoids, phenols, Glycosides, tannins, anthraquinones and steroids in the extract. Presence of the nutrients like protein, lipid and carbohydrates were also observed. As methanolic extracts was found to be rich in important phytochemicals, further pharmacological evaluations were done using this extract. Ten bacterial pathogens were tested in the methanolic extract of S.grandiflora leaves showed highest antibacterial activity to Staph. aureus (25mm) followed by B.cereus (18mm), E.coli (16mm), P. aeruginosa (11mm), Listeria monocytogenes (9mm), S.typhi (5mm), V.cholerae (5mm) and Shigella flexneri (5mm). The MIC values obtained in the present study against various pathogens were in the range of 11 to 22 mg/ml. Regarding fungal pathogen C.albicans, the MIC value observed was 25mg/ml In the present investigation total antioxidant assay, DPPH scavenging activity, super oxidide radical scavenging activity, hydroxyl radical scavenging activity, hydrogen peroxide scavenging activity were done. Identification of the 3 compounds were done using FTIR, NMR and 2D NMR spectroscopy. They were identified as lupeol (C_{30}H_{50}O), kemferol (C_{15}H_{10}O_{6}) and gallic acid (C_{7}H_{6}O_{5}).The identified compounds were further evaluated for their pharmacological potential, based on antimicrobial, antioxidant, anti-inflammatory, anticancer activities and antigenotoxic effect.