Many lives are lost everyday to infectious diseases. Access to the usually expensive conventional drugs in most African countries remains a dream and with the advent of HIV/AIDS there has been a rise in new infectious diseases caused by bacterial and fungal strains resistant to available drug regiments. The need for cheap, safe and effective antimicrobial drugs is therefore urgent to alleviate human suffering in Africa. Plants provide an underutilized reservoir of compounds of great potential as drugs. the plant of genus Tabernaemontana (Apocynaceae) exhibit antimicrobial properties and have been used by traditional healers to treat several ailments around the world. On the basis of the preliminary antimicrobial activity results, stem and root of the plant Tabernaemontana stapfiana Britten were subjected to isolation and characterization of compounds from their extracts. Vacuum liquid chromatography (VLC), column chromatography (CC) and thin layer chromatography (TLC) were used for separation, isolation and purification of compounds from the extracts. Five compounds were isolated which included: stigmasterol (94), a-amynii acetate (95), lupeol acetate (96), conodurine (97) and gabunine (98). The structures of compounds isolated were elucidated using IR and NMR spectroscopy. The bacteria used to test for bacterial activities were Staphylococcus aureus and Escherichia coli while the antifungal test was carried using Candida albicans and Trichophyton mentagrophytes. The antibacterial test showed that all the crude extracts (2mg/disc) inhibited growth of all the test organisms. The highest inhibition zones were shown by the ethylacetate, methanol root and stem extracts of between 15.021.0mm. The DCM crude extracts showed moderate activity of between 10.0-13.0mm. The anti fungal activity showed that the hexane extract (2mg/disc) had no activity against the fungi. The ethyl acetate and methanol root and stem extracts had the highest inhibition zones of between 18.0-20.0mm. Among the isolated compounds, lupeol acetate (9f,) showed moderate activity against Staphylococcus aureus with an inhibition zone of 14.0mm., stigmasterol (94) showed low activity of 8mm. a-Amyrin acetate (95) and conodurine (97 showed no activity against Staphylococcus aureus. Conodunne had the highest activity against Trichophyton mentagrophytes with an inhibition zone of 20.0mm. Lupeol acetate (96) had moderate activity of 14.0mm stigmasterol (94) and a-amyrin acetate (95) had no activity against Trichophyton mentagrophytes. The isolated compounds were tested for their antimicrobial activity at a concentration of lmg/disc. All the isolated compounds had no activity against Escherichia coli and Candida albicans. The study showed that the Tabernaemontana stapiana Britten contain compounds which may be used to cure diseases caused by bacteria and fungi used in the study.