Among two flavanones [YS01, YS02] and eight prenylflavanones [YS03-YS10], preliminary screening with fifteen test bacterial strains showed that YS06 was the most active agent. YS06 exhibited highly significant antimicrobial action when tested against 228 bacterial strains comprising two Gram-positive and six Gram-negative genera. The in vitro susceptibility test was carried out by determining the minimum inhibitory concentration (MIC) of YS06 by agar dilution technique. Twenty-two out of fifty strains of Staphylococcus aureus were inhibited at 25 to 50 μg/mL of the agent. YS06 also inhibited strains of Salmonella, Shigella and a few strains of Escherichia coli strains were also highly sensitive to YS06, while Klebsiella spp. and Pseudomonas aeruginosa were much less sensitive. In in vivo study, YS06 offered significant protection (p<0.001 according to chi-square test) to Swiss albino mice (challenged with 50 minimum lethal dose (MLD, virulent bacterium) at concentrations of 160 and 80 μg/mouse.