Abstract

The antimicrobial activity of the extracts and pure compounds from the sponge Axinella infundibuliformis collected Mombasa, the Kenyan Coast have been reported. The pure compounds were purified and characterized through various chromatographic and spectroscopic techniques. Three triterpenoid compounds were isolated and identified from Axinella infundibuliformis. These were 3β-Hydroxylup-20(29)-ene (1), 3β-Hydroxylup-20(29)-en-28-oic acid (2) and 3-Oxo-lup-20(29)-en-28-oic acid (3). The hexane, dichloromethane and methanol crude extracts (10 mg/ml) of Axinella infundibuliformis showed strong antibacterial activity against methicillin resistant Staphylococcus aureus with inhibition zone diameters of 24.7 ± 0.05, 22.0 ± 0.35 and 12.7 ± 0.09 mm respectively. The MIC values for dichloromethane and hexane extracts were then evaluated as at 6.25 mg/mL and 3.12 mg/mL respectively. The antifungal tests for Axinella infundibuliformis against Candida albicans by all the three extracts showed mild activity with inhibition zone diameters of 6.7 ± 0.02, 6.0 ± 0.04, and 5.7± 0.03 mm respectively. In addition, the dichloromethane and hexane extracts exhibited low activities against Microsporum gypseum (6.3 ± 001 mm) and Cryptococcus neoformans (6.3 ± 0.07mm) respectively. Of the three compounds isolated, 3β-Hydroxylup-20(29)-ene (24.0 ± 0.09 mm diameter) exhibited strong activity against Pseudomonas aeruginosa, while 3β-Hydroxylup-20(29)-en-28-oic acid (7.0 ± 0.06 mm diameter) and 3-Oxo-lup-20(29)-en-28-oic acid (10.7 ± 0.08 mm diameter) showed moderate activity against P. aeruginosa. Gentamycin (Standard drug 10 µg/disc) had an inhibition zone diameter of 16.0 ± 0.01 mm.