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New antibacterial xanthone from the marine sponge-derived *Micrococcus sp*. EG45

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Actinomycetes are prolific producers of bioactive natural products. Xanthone natural products are fluorescent dyes that are widely distributed among plants and microorganisms. They have been used in food, cosmetics and textile industries as coloring agents. Moreover, they exhibit a wide array of bioactivities including antioxidant, antibacterial, anti-malarial, anti-tuberculosis and cytotoxic activities. Their antibacterial action was found to be through induction of photo inactivation of bacteria via formation of reactive oxygen species such as singlet oxygen, which oxidize biological molecules including lipids, proteins and nucleic acids, leading to cell death. Microluside A [4 (19-para-hydroxybenzoyloxy-O-b-D-cellobiosyl),5(30-para-hydroxybenzoyloxy-O-b-Dglucopyranosyl) xanthone is a unique O-glycosylated di-substituted xanthone isolated from the broth culture of *Micrococcus* sp. EG45 cultivated from the Red Sea sponge *Spheciospongia vagabunda*. The structure of microluside A was determined by 1D- and 2D-NMR techniques as well as high resolution tandem mass spectrometry. The antimicrobial activity evaluation showed that 1 exhibited antibacterial potential against *Enterococcus faecalis* JH212 and *Staphylococcus aureus* NCTC 8325 with MIC values of 10 and 13 μM, respectively. This is the first report for xanthone derivatives from *Micrococcus* sp. which introduces this micro-organism as a new source for vital antimicrobial agents specifically the reluctant enterobacteriacea.

Biography

Safwat A Ahmed completed his PhD from Suez Canal University, Faculty of Pharmacy. He is the Vice-Dean for Students Affairs, Faculty of Pharmacy, Suez Canal University. He has published more than 50 papers in reputed journals and has been serving as a Peer-Reviewer for reputed journals at his field.

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