

<https://doi.org/10.7124/bc.000BA1>

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METABOLOMIC CHARACTERIZATION AND ANTIMICROBIAL POTENTIAL OF MARINE *STREPTOMYCES CHUMPHONENSIS* CONC10

Background/Aim. The rapid spread of antimicrobial resistance necessitates the discovery of novel bioactive compounds for next-generation therapeutics. Marine actinobacteria represent a promising source of structurally diverse secondary metabolites with antimicrobial, antifungal, and anticancer activities. This study aimed to evaluate the antimicrobial activity of extracellular metabolites from marine-derived isolates *Streptomyces chumphonensis* conc10 against a standardised test cultures and to characterise their secondary metabolome by LC-QTOF-MS. **Methods.** *S. chumphonensis* conc10 were isolated from concrete substrates (0.2–1.0 m depth, Odesa Bay, Black Sea; 46°27'01"N, 30°46'14"E; June–July 2020) and cultured on SG medium at 28 °C, 180 rpm for 9 days. Secondary metabolites of *S. chumphonensis* conc10 were extracted with ethyl acetate and analyzed by LC-QTOF-MS. Putative compound annotation was performed based on accurate mass measurements and metabolite databases. Antimicrobial activity was assessed against *Escherichia coli*, *Staphylococcus aureus*, *Salmonella enterica*, *Listeria ivanovii* and *Lactobacillus sakei*. The inhibitory effect was determined using optical density measurements to calculate the bacterial growth inhibition compared to control samples. **Results.** Antimicrobial screening revealed a selective activity profile of extracellular metabolites produced by *S. chumphonensis* conc10. The filtered culture supernatant demonstrated the highest inhibitory effect against *S. enterica* (22.99%) and *S. aureus* (16.18%), while only weak inhibition was observed against *E. coli* (4.54%). No inhibitory activity was detected against *L. ivanovii*. In contrast, the unfiltered supernatant exhibited notable inhibition of *S. enterica* (18.37%) and *E. coli* (16.21%), suggesting that both secreted metabolites and cell-associated components may contribute to antimicrobial activity. Metabolomic analysis of *S. chumphonensis* conc10 revealed putatively identified secondary metabolites, among them, Bacilsubteramide A and Piericidin A5 are known for antimicrobial and cytotoxic activities. The metabolome included 12 compounds previously associated with anticancer properties and 7 metabolites with reported antifungal activity, including Chrysotriazole B. **Conclusions.** *S. chumphonensis* conc10 isolated from the Black Sea, demonstrated measurable antimicrobial activity against both gram-positive (*S. aureus*) and gram-negative (*S. enterica*, *E. coli*) bacteria, with the strongest inhibition observed for *S. enterica* (22.99%). The identification of Piericidin A5 and Chrysotriazole B is of particular translational relevance. The detected metabolite spectrum indicates a high biosynthetic capacity of the strain and suggests the presence of multiple bioactive compound classes with therapeutic potential.

Keywords: marine actinobacteria, *Streptomyces chumphonensis*, secondary metabolites, LC-MS, antimicrobial activity

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Received: 08.06.2026; Accepted: 08.09.2026; Published: 29.09.2026

Citation: Bidnyk M.Yu., Korotaieva N.V. (2026) Metabolomic characterization and antimicrobial potential of marine *Streptomyces chumphonensis* conc10. *Biopolymers & Cell*, Special issue(42), 103. <https://doi.org/10.7124/bc.000BA1>
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