

EFFECTS OF PENTACYCLIC TRITERPENOID COMPOUND ON BIOFILM FORMATION ABILITY AND VIRULENCE OF *STENOTROPHOMONAS MALTOPHILIA*

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Biofilm formation by *Stenotrophomonas maltophilia* is an important virulence factor in the development of chronic infections. *S. maltophilia* is an emerging multidrug resistant opportunistic human pathogen that often causes nosocomial infections. This pathogen in biofilms is resistant to the host's immune defenses and antibiotic therapy. We aimed to assess the potential use of pentacyclic triterpenoid compound as a novel anti-biofilm and anti-virulence agent against *S. maltophilia*. Pentacyclic triterpenoid compound-induced decrease in biofilm formation was dose-dependent based on the results of the microtiter plate biofilm assays and confocal laser scanning microscopy. Also, this compound shows anti-virulence efficacy, wherein it significantly interfered with the production of protease and motility of *S. maltophilia*. In addition, transcriptional analysis revealed that pentacyclic triterpenoid compound down-regulated the expression of biofilm- and virulence- associated genes (*smeYZ*, *fsnR*, and *bfmAK*) in *S. maltophilia*. Interestingly,

pentacyclic triterpenoid compound significantly inhibited the expression of *smeYZ* gene, which encodes the resistance-nodulation-division (RND)-type efflux pump, *SmeYZ*. Overall, our findings suggested that pentacyclic triterpenoid compound might be a potential bioactive agent by targeting biofilm formation and virulence factors without inhibiting *S. maltophilia* growth.

Biography

Yong-Bin Eom has completed his PhD from Yonsei University, Republic of Korea. He was a Researcher. Asan Inst. Life Scis., 1997-98; Forensic DNA analyst. Nat. Forensic Svc., 1998-2009; Prof. Korea Nazarene University, 2009-13; Now he is the Prof. of Dept. of Biomedical Laboratory Science, College of Medical Sciences, Soonchunhyang University. He has published more than 30 papers in reputed journals and has been serving as an ISO/TC198 and ISO/TC212 bd. mem. Korean CDC., editorial board member of Biomed. Sci. Lett. and Korean J. Clin. Lab. Sci.

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