

Title (4)	:	Untargeted Metabolomics Profiling Reveals Carbon Source-Dependent Rhamnolipid Congener Production in Burkholderia Thailandensis E264
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Abstract	:	This study investigated glycerol and oleic acid as carbon sources on RL production and congener diversity in Burkholderia thailandensis E264 (BSL 1), a safer alternative to Pseudomonas aeruginosa, using an untargeted metabolomic approach. B. thailandensis E264 was grown in triplicate for nine days at 30 °C, extracted using ethyl acetate, and analysed using LC/Q-TOF/MS. Results showed 84 RL congeners with different adducts were annotated. Cultures with glycerol primarily produced di-RLs with carbon chain lengths from C12:2 to C16-C14, whereas cultures with oleic acid produced mono-RLs (C8:2 to C16-C16). Multivariate analysis of PLS-DA revealed distinct RL profiles in response to different carbon sources, with di-RL-C10-C12 (VIP = 2.15) and mono-RL-C10-C14:1 (VIP = 1.90) identified as key congeners in the glycerol and oleic acid cultures, respectively. The heatmap highlighted significant fold changes in RL congener abundance (2.94-fold higher di-RL-C14 in glycerol culture and 4.38-fold higher mono-RL-C8-C10 in oleic acid culture). These findings demonstrate that the carbon source significantly affects RL congener production in B. thailandensis E264, suggesting the potential for RL production optimisation and tailoring congener profiles for specific applications.