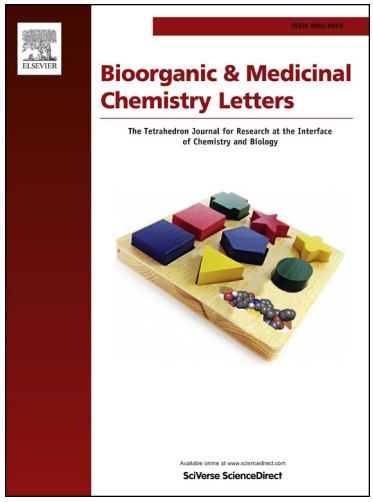

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Chemical Structure and Biological Activity of a Quorum Sensing Pheromone from *Bacillus subtilis* subsp. *natto*

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Key words: *Bacillus subtilis*; *natto*; posttranslational modification; quorum sensing.

Abstract

Bacillus subtilis subsp. *natto* secrets a peptide pheromone, named $ComX_{natto}$ pheromone, as an inducer for biofilm formation containing poly-γ-glutamic acid. Recently, the $ComX_{natto}$ pheromone was identified to be a hexapeptide with an amino acid sequence of Lys-Trp-Pro-Pro-Ile-Glu, and the tryptophan residue was post-translationally modified with a farnesyl group. In order to determine the precise modification of the tryptophan residue, $ComX_{natto}$ pheromone was synthesized using solid-phase peptide synthesis. Biological activity of the $ComX_{natto}$ pheromone was then investigated. It was demonstrated that poly-γ-glutamic acid production were accelerated by $ComX_{natto}$ pheromone at more than 1 nM in *natto*.