Total synthesis of a plant-derived glycoside that attenuates virulence in *Pseudomonas aeruginosa*

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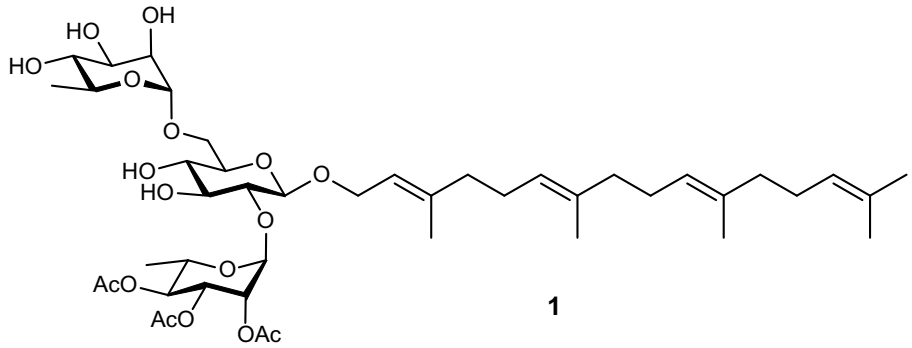
P. aeruginosa is a detrimental lung pathogen, commonly associated with hospital-acquired infections. It is a major cause of mortality in patients with cystic fibrosis or a compromised immune system. It is associated with a high risk of developing drug resistance, and therefore, the World Health Organization has identified it as a pathogen for which novel therapeutic approaches are urgently needed.

Recently, the screening of a natural product library identified a novel glycoside structure (**1**) which was capable of attenuating virulence in *P. aeruginosa*. To further characterize this unique activity, we carried out the total synthesis of glycoside **1** and related derivatives to facilitate a structure-activity relationship study. This natural product, isolated from a plant extract, consists of a trisaccharide core structure and a geranylgeraniol diterpenoid aglycone. Although both the diterpenoid tail and the single acetylated rhamnose unit presented unique synthetic challenges, we successfully designed and carried out the total synthesis of this complex natural product and related analogues. An investigation of their biological activity is currently underway.



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