

### Functional Analysis of Three Compounds Purified from Red Alga *Ahnfeltiopsis flabelliformis* in *Agrobacterium* Quorum Sensing Mechanism

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Quorum-sensing (QS) is involved in various cellular events such as cell differentiation, secondary metabolite production, biofilm formation, and virulence expression. In one red algal species *Ahnfeltiopsis flabelliformis*, the fraction containing betonicine together with floridoside and isethionic acid was observed to have antagonistic effect on AHL function when tested by a liquid culture assay using the recombinant *Agrobacterium tumefaciens* NTL4 (pCF218) (pCF372) as the reporter strain. However, when tested alone, betonicine had a dose-dependent stimulatory effect like AHL in the concentration ranged from 10<sup>-3</sup> M to 10<sup>-6</sup> M. Betonicine and its isomer are new inducers which are structurally different from the AHL signaling molecules. Floridoside and isethionic acid showed neither inhibitory nor stimulatory effect when tested individually. However, when present together, they exhibited some inhibitory effect on the function of AHL. The complex of floridoside and isethionic acid seemed to be responsible for the inhibition activity in the red algae extract.