

Alkaloids from *Nauclea orientalis* Inhibited in vitro ADP and Thrombin Induced Human Platelet Aggregation / Sinchai Chaikham, Jakkrit Buatana, Mattawan Meethangdee, Jarinya Luang-apiro, Napatjaree Sopin, Kitipong Jantabut, Chiraphat Kloypan, Serm Surapinit, Nuttakom Baisaeng

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Abstrak

A series of alkaloids isolated from the roots of *N. orientalis* is investigated for the inhibitory activities on in vitro agonists induced human platelet aggregation. Human platelet samples were obtained to investigate the anti-platelet activity by high throughput 96-well microtiter plate format. Adenosine diphosphate (ADP), arachidonic acid (AA), thrombin and thrombin receptor activating peptide-6 (TRAP-6) were used as agonists for in vitro human platelet aggregation. All alkaloids were inactive in the AA induced platelet aggregation. Compound 2 was the only alkaloid to inhibit ADP induced platelet aggregation with the IC₅₀ value of 27.01 ± 7.67 pM and was more potent than the standard drug, ibuprofen ($p < 0.05$). The compounds 1, 3, 4, 5 and 7 were more potent than the standard drug to inhibit thrombin induced platelet aggregation with the IC₅₀ values of 3.05 ± 0.22 , 4.41 ± 0.47 , 7.50 ± 0.22 , 45.69 ± 1.74 and 4.89 ± 0.13 pM ($p < 0.05$), respectively. None of the potent alkaloids in thrombin-mediated platelet aggregation exhibited the inhibitory effect in TRAP-6 induced platelet aggregation. Compound 2 could inhibit platelet aggregation through the interference of platelet purinergic receptors (P2Y₁ and P2Y₁₂ receptors). Moreover, compounds 1, 3, 4, 5 and 7 could have inhibitory effects on thrombin-induced platelet aggregation through the proteolytic inhibition without the interferences of ligand-receptor interaction.