

1 **Abstract**

2 As a Japanese folk medicine, *Tithonia diversifolia* (TD) is used for cardiovascular disease
3 prevention and health maintenance. We isolated TD-derived orizabin based on the NO
4 production inhibitory effect. This study aimed to consider orizabin as a novel functional
5 compound with anti-atherosclerotic activity. Orizabin significantly inhibited the adhesion of
6 THP-1 cells to HUVECs and suppressed the mRNA expression of adhesion molecules in
7 HUVECs. In PMA-stimulated THP-1 cells, orizabin suppressed macrophage differentiation,
8 CD36 expression (1% at 10 μ M), and NF κ B transcriptional activity. Furthermore, orizabin
9 suppressed oxLDL uptake in macrophages and the Akt phosphorylation. On the other hand,
10 we revealed that PTEN mRNA and protein expression were promoted significantly by
11 orizabin (mRNA, 270 fold at 10 μ M). Our study presented the possibility that TD-derived
12 orizabin is novel anti-atherosclerotic compound via the suppression of Akt phosphorylation,
13 and TD may be effective as a new crop for vascular health maintenance.

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