

In vitro and in vivo Antiangiogenic Activity of Girinimbine Isolated from Murraya koenigii

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Abstract : Girinimbine, a carbazole alkaloid was isolated from the stem bark and root of *Murraya koenigii* and its structure and purity was identified by HPLC and LC-MS. Here we report that Girinimbine strongly inhibit angiogenesis activity both in vitro and in vivo. MTT result showed that girinimbine inhibits cell proliferation of the HUVECS cell line in vitro. Result of endothelial cell invasion, migration, tube formation and wound healing assays also demonstrated significant time and dose dependent inhibition by girinimbine. Moreover, girinimbine mediates its anti-angiogenic activity through up- and down-regulation of angiogenic and anti-angiogenic proteins. Furthermore, anti-angiogenic potential of girinimbine was evidenced in vivo on zebrafish model. Girinimbine inhibited neo-vessels formation in zebrafish embryos during 24 hours exposure time. Together, these results demonstrated for the first time that girinimbine could effectively suppress angiogenesis and strongly suggest that it might be a novel angiogenesis inhibitor.

Keywords : anti-angiogenic, carbazole alkaloid, girinimbine, zebrafish

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