Effect of Nobiletin on L-NAME Induced Vascular Remodeling and Dysfunction in Rats

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ABSTRACT

This study investigated the effect of nobiletin on vascular remodeling and dysfunction in L-NAME-induced hypertensive rats. Male Sprague-Dawley rats were given L-NAME (40 mg/kg) for five weeks to induce hypertension and treated with nobiletin (20 or 40 mg/kg) or captopril (5 mg/kg) for the last two weeks. Nobiletin or captopril significantly reduced blood pressure, vascular dysfunction and oxidative stress markers which were associated with restoring the abnormality of plasma NOx and protein expression of eNOS, Nrf-2 and HO-1 observed in L-NAME rats. The alterations of vascular morphology that occurred in L-NAME rats were reduced by nobiletin or captopril. These reductions were associated with suppression of MMP-2 and MMP-9 protein expression. These findings indicated that nobiletin had antihypertensive effects with amelioration of vascular alterations. The molecular mechanism is likely to involve the restoration of Nrf-2/HO-1/MMPs signaling pathways.

Keywords: Nobiletin, Vascular dysfunction, Vascular remodeling

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