

In Rats with Spontaneous Hypertension, *Radix Cyathula Officinalis* Kuan Prevents Vascular Remodelling

Michael Halim*

Department of Medicine and Surgery, University of Fudan, Shanghai, China

Description

Despite the availability of a variety of pharmacological medications for the treatment of hypertension, there is still no cure for arterial remodelling associated with it. The current study looked into how *Cyathula officinalis* Kuan's roots (*C. officinalis* Kuan) protect against in vitro vascular remodelling. Intragastrically administered doses of 3, 6, or 12 g/kg of *C. officinalis* Kuan, sterile saline, or enalapril (2.5 mg/kg) were given to spontaneously hypertensive rats (SHRs) every day for eight weeks [1]. The carotid and aorta were stained with hematoxylin and eosin and the blood pressure was measured. Nitric oxide (NO) assay kit was used to measure the serum levels of NO (nitrate reductase method). Quantitative reverse transcription-polymerase chain reaction (qRT-PCR) was used to examine the transcriptional level of endothelin-1, endothelial NO synthase, angiotensin II receptor type 1 (AT1R), in the aorta and carotid, and the protein level in the aorta. At 4, 6 and 8 weeks after treatment, the blood pressure was considerably lower in the SHR + enalapril, SHR + 3 g/kg, SHR+6 g/kg, and SHR+12 g/kg *C. officinalis* Kuan groups than in the SHR group. Aortic wall thinning was demonstrated by several dosages of *C. officinalis* Kuan and enalapril therapy, which also increased NO serum levels, but had no effect on the transcriptional levels of AT1R in the aorta or endothelial NO synthase in the carotid. Such outcomes imply that *C. officinalis* Kuan treatment may be appropriate. *C. officinalis* Kuan has the ability to combat arterial remodelling, which suggests that it may offer a new method for treating arterial remodelling brought by hypertension. Due to the etiologic causes of hypertension and its growing impact on heart attack, stroke, and renal failure, it can be prevented from contributing to mortality and morbidity in people's health [2]. According to World Health Organization (WHO) data, high blood pressure, even when only slightly above normal, is to blame for 49% of ischemic heart disease and 62% of cerebrovascular illness. Patients with hypertension have an increase in blood pressure due to factors such as peripheral vascular resistance, blood volume in circulation, and cardiac output. Selecting the right therapy for each patient is a significant task [3]. Invasive and non-invasive approaches have improved vascular alterations in hypertensive people and experimental animals over the past few years. There is a correlation between hypertension and aortic remodelling, which is characterised by altered structural vascular function and lost endothelium-dependent vasodilation, in both animal and human models. Therefore, the tone and structure of the circulatory system depend on the endothelium. Contrary to the traditional phenotype of hypertensive aortic, which includes degenerated and calcific vascular wall and increased aortic diameter, a decreased aortic diameter in a hypertensive subject in middle age may also make sense to increase pulse pressure through strengthening particular impedance. Targeted anti-hypertension therapy has been developed by scientists to take into account the varied mechanisms of blood pressure.

*Address for Correspondence: Michael Halim, Department of Medicine and Surgery, University of Fudan, Shanghai, China, Email: halimchina@pdu.com

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Although anti-hypertensive medications such as calcium-channel blockers, angiotensin II receptor blockers, and angiotensin-converting enzyme inhibitors (ACE) are widely used in clinical treatment, vascular alterations brought on by hypertension are unaffected. Therefore, it is essential to create novel therapeutic strategies and medications to treat vascular remodelling brought on by hypertension [4]. Conventional Chinese herbs have attained a good acceptability in China thanks to their "multi-target" properties, composition of numerous suitable herbs, and use of multiple substances in a single prescription. These traits work to reduce side effects and increase efficacy. Targeted anti-hypertension therapy has been developed by scientists to take into account the varied mechanisms of blood pressure. Although anti-hypertensive medications such as calcium-channel blockers, angiotensin II receptor blockers, and angiotensin-converting enzyme inhibitors (ACE) are widely used in clinical treatment, vascular alterations brought on by hypertension are unaffected. Therefore, it is essential to create novel therapeutic strategies and medications to treat vascular remodelling brought on by hypertension. Conventional Chinese herbs have attained a good acceptability in China thanks to their "multi-target" properties, composition of numerous suitable herbs, and use of multiple substances in a single prescription. These traits work to reduce side effects and increase efficacy. The perennial herbaceous plant *Cyathula officinalis* (*C. officinalis*), which is a member of the Amaranthaceae family, is widely distributed in tropical regions of Africa and Asia, particularly in Korea, Vietnam, and China. The roots of *C. officinalis* Kuan, also known as "Chuan Niu Xi" in Chinese, have the ability to produce diuresis to treat stranguria as well as remove blood stasis and restore menstrual flow [5]. It is frequently used as an emmenagogue, atonic, antiarthritic, anti-fertility agent, diuretic, and to strengthen muscles and bones, stimulate circulation, and nourish the kidneys and liver. The biological properties of many active biological components, including phytoecdysteroids, hyterocyclic compounds, and palmitic acids, have been highlighted in the extraction of *C. officinalis* Kuan. The anti-hypertensive properties of *C. officinalis* Kuan, however, have received little investigation.

Acknowledgement

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Conflict of Interest

None.

References

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